

CALIFORNIA FISH AND GAME

"CONSERVATION OF WILD LIFE THROUGH EDUCATION"

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SIXTEENTH ANNUAL CONFERENCE

WESTERN ASSOCIATION OF STATE GAME AND FISH COMMISSIONERS

July. 22 and 23, 1936, San Francisco, California

ADDRESS

By ELLIOTT S. BARKER, President, Western Association of State Game and Fish Commissioners; and State Game Warden, New Mexico.

Delegates to the sixteenth annual conference of the Western Association of State Game and Fish Commissioners, ladies and gentlemen, and friends: It is a great pleasure to see so many familiar faces here today, to meet in conference with you and to welcome many new officials to take part in our deliberations.

It is my understanding that one of the chief prerogatives of the president of an organization is the privilege of making the first speech following the opening ceremonies. As an advocate of states' rights I do not intend to surrender any prerogatives.

I have a bright little daughter fourteen years of age who came to me the other day and said:

"Daddy, you must be careful of your health, drive your car carefully and avoid accidents."

"Why so?" I asked.

"Because," she replied, "if you were to die that would be the end of our family tree."

"Oh, no," I said, "You're wrong. I have brothers and a son to perpetuate the name. I'm not that important."

"No, I'm not wrong," she said, "for don't you know that no tree, not even a family tree can live without its sap?"

When the delegates to the fifteenth annual conference of the Western Association insisted against my will and against my best judgment in reelecting me as president of our great Association, I thought it was a mistake. I have not changed my mind about it, and you all probably now agree that I was right.

They may, however, have felt that the requirements of our Association were the same as the requirements for perpetuation of a family tree. Right or wrong, your humble servant has been duly appreciative of the honor bestowed upon him and I hope not unmindful of the great responsibilities of directing the affairs of our Association. I have endeavored, to the best of my limited ability, to serve you and to promote wildlife programs and policies for the best interests of our great western empire.

Ten and a half months have passed since the Western Association of State Game and Fish Commissioners met in that memorable con-

vention at Santa Fe, New Mexico. Short as the lapse of time seems, much of importance has transpired since that meeting, some of which, at least, we hope will result in benefiting wildlife in our great western states. We hope that some events have served to bring about closer cooperation and a better understanding with other agencies and organizations concerned with the welfare of wildlife. We feel that game, fish and conservation officials of the eastern states understand some of our problems better than they did a year ago. We believe that some progress is being made in bringing land users and wildlife interests closer together.

We have a rather full and I hope worth-while program ahead of us, which will be far more interesting and constructive than anything I can say to you, and I shall, therefore, take up very little of your valuable time. However, I believe a brief review of the past year's activities will serve to some extent as a basis for our deliberations and actions at this our sixteenth annual conference.

When we met at Santa Fe last year, practically all western officials and sportsmen were in a turmoil of dissatisfaction over the then recently announced migratory bird seasons. The dissatisfaction was not in giving the birds a chance or giving them the protection they need. We were in accord on that even to the extent of a closed season if deemed necessary. We did oppose the back-handed, discriminatory, or thoughtless closing of seasons in certain sections of the country by establishing the shooting dates either before the birds had arrived or after they had left.

Proceeding to the International Association of State Game, Fish and Conservation Commissioners' conference at Tulsa, Oklahoma, on September 12th and 13th, I found virtually the same sentiment existing there. At both conferences appropriate resolutions were passed urging closer cooperation by the U. S. Biological Survey with state game officials in the establishment of seasons.

While the 1936 migratory bird seasons have not been announced, I have reason to believe that the new Chief of the Biological Survey, Honorable Ira N. Gabrielson, in whom I have great confidence, is making a worthy effort to cooperate and consult with state game authorities in establishment of migratory bird seasons that will be fair to birds and sportsmen alike. There can be no doubt that recent excessive losses of young ducks on much of the breeding area due to the drouth will seriously affect the supply and that it will add to the growing public sentiment for a closed season is also evident.

Another subject that occupied much time at the fifteenth annual conference was making provision for wildlife on grazing districts established on the public domain under the Taylor Grazing Act. The action of our Association was to reaffirm the stand taken at our special meeting in Denver on February 14, 1935. The salient features of our stand have been:

1. Urging recognition and acceptance by Department of Interior officials and stockmen alike of the principle that wildlife is entitled to share in the use of all of the public domain lands.

2. That such reasonable joint or common use with livestock over large areas will produce far more game than restriction of game

to established game ranges even if use of such areas were devoted exclusively to wildlife.

3. That in addition to joint use, limited areas of hereditary game ranges of highest value for wildlife should be so designated and devoted primarily to wildlife use, subject, however, to administration by state game officials.

4. That the remainder of the public domain should be put under administration.

5. That the Secretary of the Interior should provide for an appropriate cooperative setup with official state agencies charged with wildlife administration. (These provisions are all included in the rules approved for New Mexico.)

Here again I found the International Association pretty much in accord with the principles of the stand taken by the Western Association. The eastern, southern and midwestern states' officials were greatly interested in this subject and one whole afternoon session was devoted to a discussion of it.

At the fifteenth conference we reiterated our opposition to Regulation G-20A of the Forest Service, and reaffirmed the stand taken at our fourteenth conference at Portland, Oregon, and the special conference in Denver on February 14, 1935. While there seems to be a considerable difference of opinion among Forest Service officials as to the propriety and authority for this regulation, I regret that there seems to be no inclination on the part of the Forester or Secretary of Agriculture to withdraw it. On the other hand I see no reason for us to change our attitude.

A resolution urging greater cooperation and coordination by state and federal officials responsible for public works projects to avoid injury to wildlife was passed at our last conference, and events of the year have proven the necessity for eternal vigilance. Still others urging the U. S. Bureau of Fisheries to continue studies and experiments with fish foods and treatment of fish diseases were passed.

From our fifteenth conference, let us pass on to the International Association conference at Tulsa, Oklahoma, which I, with several other western officials, attended. Suffice it to say that in addition to the actions already referred to, I feel the problems of the west, the power of the Western Association and the importance of the western states as the vital factor in future production of big game, seemed to be recognized to a greater extent than I have observed in many eastern conferences.

Coming as a complete surprise, and I think without justification, your president was honored by being elected president of the International Association of Game, Fish and Conservation Commissioners, also. I find the position hard to fill creditably without neglecting the affairs of the Western Association, which during my tenure of office, I have endeavored not to do.

You are all so familiar with the North American Wildlife Conference held in Washington, D. C., February 3 to 7, 1936, that a review of our activities at that meeting would be superfluous at this time. However, I may state that it was most gratifying that practically all of the eleven western states were well represented. We held several special sessions and I believe you will agree did some effective work.

To say that the west and its problems were given greater recognition at the General Wildlife Conference than at any previous eastern wildlife conference is putting it very mildly indeed.

What will come of the General Wildlife Federation remains yet to be seen. At this conference we shall undoubtedly hear some encouraging words of the progress being made from the acting president, J. N. Darling, who some time ago assured me he would attend our conference.

One of the many important actions taken by our Association while at the wildlife conference was to direct a letter to the Chief Forester, calling his attention to the necessity for careful consideration of present and future wildlife needs in establishing a ten-year grazing permit policy for national forests, and in reduction of permits for greater distribution of grazing privileges, which at that time was under consideration. This letter had a beneficial effect but whether adequate or not is for you to judge. The ten-year permit policy established, with which you are, no doubt, familiar, limits reduction of permits for greater distribution to twenty per cent, and the maximum reduction for all purposes, prior to the end of 1940, is limited to thirty per cent. Thereafter, reductions may be made as circumstances warrant. If reduction for protection includes the needs for wildlife, as I have been assured that it does, then the policy seems reasonable and fair; otherwise, quite the reverse would be the case.

The most recent activity of our Association through correspondence has been opposition to the first and second sections of the Kleberg Bill, which we believe contains some dangerous wording. No definite attitude has been expressed as to our stand on the main objectives of the bill which I personally believe are worthy, but that should be determined by this conference. We do not desire to inject any nonessential nor extraneous matter into this bill, but certainly we do not want the Department of Agriculture to inject intentionally or otherwise a legal leaning post for encroachment upon states' rights in the administration and regulation of non-migratory wildlife.

Among the important actions during the past year are included three outstanding happenings which may have a far-reaching effect upon the future wildlife policies in the western states.

First, the tentative formation of the General Wildlife Federation which has possibilities for bringing land users, sportsmen, official wildlife agencies and the public into closer harmony.

Second, the appointment of Dr. Ira N. Gabrielson as Chief of the U. S. Bureau of Biological Survey, whose qualifications from the standpoint of education, experience and familiarity with western conditions eminently fit him for the place.

Third, the setting up of a Game Management Division in the U. S. Forest Service and the selection of Dr. H. L. Shants, formerly head of the University of Arizona, as chief. This has great possibilities for good in restoration of wildlife habitat and properly correlating the uses of national forest lands. However, the need for another technical wildlife setup to parallel the work of the Biological Survey, or to supplement it is not apparent.

I could continue discussion of the activities of our Association and related happenings, but I am taking up too much of your valuable time and we need to be getting on with our program. Permit me to say in

closing that it is my earnest hope in our deliberations at this conference that we will stand strongly together as our Association has on every important question for fifteen years. Let us take and recommend constructive action where action is needed to further and protect wildlife interests. In short, let us make this conference worth-while and outstanding among those of the past fifteen years.

I thank you.

It is with great regret I have to announce that our old friend and one of the original members, Mr. Roland G. Parvin of Colorado, can not be with us today. He was scheduled to give a little talk on the history of the Western Association, but some unfortunate events, one of which was the sudden death of his chief assistant only a few days ago, have prevented Mr. Parvin from being with us today. I have a wire with me I would like to read:

"Greetings to the Association and more power to you. I so deeply regret not being with you as you open your session this morning and I am wishing you a most successful and pleasurable meeting. Say 'hello' to everybody for me. Keep your noses dry, head cool, feet warm and everything will be jake."—R. G. Parvin.

Mr. Parvin has been kind enough to send along a paper entitled "History of the Western Association," which I have asked Mr. Newell B. Cook of Utah to read at this time.

HISTORY OF THE WESTERN ASSOCIATION

By R. G. PARVIN, Vice-President, Western Association of State Game and Fish Commissioners; and Game and Fish Commissioner, Colorado

The office of State Game Commissioner is a great vantage point from which to watch a nation set its house in order, and to assist somewhat in that endeavor if one be so inclined.

For eighteen years, from my office in the Colorado State Capitol, I have watched the march of events with interest and concern. I have seen this great nation of ours slowly awaken from its spendthrift dream of inexhaustible wealth to take alarmed and sober accounting of itself and its possessions, not only in relation to the present, but to the future.

Beginning with the Indians, whose tribal laws controlled the use of game that there might be a continuing food supply, down to the present time when planning commissions talk earnestly of soil conservation, land use, game management, etc., *small* groups of people have always preached conservation and unselfish use of natural resources. But only in the last twenty or thirty years has the "man in the street," so to speak, given any thought at all to the fact—to quote a recent and much-used phrase—that "the frontiers are gone." Almost unbelievably this "man in the street" has discovered that the virgin country he thinks of as teeming with forests, land, water, metals, wildlife, to be had almost for the asking, is a thing of the past. If impatient with conditions, he must change them where he stands. He can not move on to new fields and start over. Horace Greeley would not now advise the young man to "Go west." He would be compelled to say, "This is your

West, young man, what are you going to do with it? Shall it stand, as its mountains stand, the symbol of beauty, strength and freedom, or will you let indifference, greed and ignorance have their way to exploit, waste and despoil it?"

The Western Association of State Game and Fish Commissioners is one of the answers to that question. It came into being at the time the national conscience began to sting with remorse at its neglect of wildlife, the havoc wrought by hunter and trapper, and the barren state of public waters. It is doubtful if anyone at the first meeting even dreamed of the strong, closely welded organization we now have; this union of western states standing together through their game and fish commissioners pledged to preserve for themselves and control for themselves the natural resources within their boundaries.

The first proposal of an association of western states was made by the Game and Fish Commissioner of Utah in 1918, just after the Armistice was signed. An epidemic of influenza caused it to be postponed. A second meeting was arranged for February, 1920, and again influenza caused a cancellation of the date. It was left for Dave Madsen, succeeding the former Utah commissioner, to finally gather around his camp fire at Salt Lake City in January, 1922, the states of Arizona, Colorado, Montana, New Mexico, Utah, Oregon and Wyoming. California, Idaho, Nevada, and Washington, the remaining states eligible for membership, were not present. Nevada has never joined the Association. An amendment to the by-laws at the second meeting provided that honorary members might be admitted to the association and allowed to participate in its deliberations, but without the right to vote or participate in any official business.

The objects of the Association as stated in the by-laws are:

"To promote harmony and unity among its members and members of like associations throughout the country for the purpose of exercising a combined and powerful influence in securing enactment of laws, and amendments to present laws, favoring the propagation of game and fish, and to further provide for just, reasonable and uniform laws and regulations for the protection of same."

The Association unanimously agreed at this meeting that steps should be taken to prevent the extermination of bears; that beaver should be protected in all the western states insofar as could be done without interfering with agricultural, industrial or livestock interests. A uniform price of three dollars for non-resident fishing licenses was agreed on in the states represented; legislation was favored making it a misdemeanor to possess game taken in an adjoining state unless the possessor could show legal possession. The Association unanimously disapproved centralization of control in the federal government of game, birds, animals and fish in the confines of any state, and in that connection disapproved a bill providing for a federal license to hunt migratory birds. This disapproval was based not so much on the license feature, but on the extent of the authority conferred upon the U. S. Department of Agriculture. It was due largely to the influence of the Western Association that this pernicious legislation was finally defeated.

The Association has not swerved from the course it first charted. It has stood firmly against encroachment by the federal government on the rights of the states to ownership and control of wildlife within

their borders, but it has done more than that. It has sought to build up among its members a broader outlook, a deeper sense of responsibility in the administration of state departments, a better knowledge of general conditions and the necessity of cooperation with the different agencies concerned with wildlife conservation. There has been free and frank discussion of all phases of state problems, and being in complete accord with each other on fundamental principles, these discussions have always resulted in bringing the states closer together and strengthening their common purpose and their common knowledge.

The Association has a sympathetic nervous system, and seems to become immediately conscious of anything that affects the general welfare. Its influence is quietly but steadily directed wherever it is needed, and I think we are not flattering ourselves in feeling that it is a factor to be reckoned with. As in the beginning, its policy has always been to work with the federal government in all legitimate undertakings to promote wildlife interests, but staunchly to oppose federal ownership and control. No doubt one of the greatest achievements of the Association has been in creating a better understanding between different sections of the country, and therefore greater tolerance. When intelligent, thinking men put their feet under the table, look each other in the eyes and frankly discuss affairs, difficulties are usually reduced to the lowest common denominator. This fact has been proved many times in this Association. Fortunately, from our first president, Dave Madsen (and a little later I will tell you what rating Dave had among the charter members) to the present go-getting Elliott Barker, we have had liberal minded, level headed, straight shooting, clear eyed men at the head. They have been actuated by a single purpose and have very seldom been tempted to deviate from that purpose. Consistency has been the watchword from the start, and consistency combined with honesty and unselfishness is hard to beat.

Our final business meeting in 1923 was held in Old Faithful Inn in Yellowstone Park, where we had gone as guests of Montana. This meeting marked the beginning of our intercourse with national agencies and associations, and ever since then, these agencies and associations have been as well represented at our meetings as have the member states themselves, and have contributed in large part to the growth of interest and activity. Representatives from our Association have also participated in the meetings of all major organizations and have kept in close touch with everything in the world of conservation. A lot of cross purposes were adjusted at a concurrent meeting of the American Fisheries Society, the International Association of State Game Commissioners, and the Western Association in Denver in 1925, at which the National Association of Audubon Societies, the Izaak Walton League, the U. S. Forest Service, U. S. Bureau of Biological Survey, and other organizations were well represented. It was well that our Colorado climate was in a pleasant mood and served the cool mountain air the crowd expected, otherwise the heat thrown off by some of the arguments that went on might have started a conflagration.

Each member state at one time or another has extended its hospitality to the Association, and every occasion has been a bright spot in the year's work. I, for one, have always returned to Colorado from our meetings with aroused enthusiasm, with new ideas and

with a broader concept of the vast field in which we are actually pioneers. Wildlife conservation is still in its infancy—a big, clumsy infant without much shape, but with potential energies that will develop into a great instrument for good under proper guidance. Regional associations have their part to play in bringing about a well-balanced, carefully planned national program, as well as in looking out for their regional interests. I believe the future progress of the Western Association depends upon its continued open mindedness and unselfish devotion to the American ideal of justice to all and malice toward none, which has earned it the respect of all agencies it has so far contacted.

The credit for the successful organization of this Association rightfully belongs to Dave Madsen, that progressive, forward looking gentleman who at present devotes his genius to federal affairs, but who keeps one eye single to the interests of Utah and the western states. What the Association thought of him (and still thinks) is well expressed in the following resolution adopted by the convention in San Francisco in 1922:

"WHEREAS, Under the leadership of Commissioner Madsen, and as a result of his far-seeing judgment that is second only to the revelations of the great founder of Utah, Brigham Young, this Association bids fair to promulgate and adopt conservation measures that will make the regulations and efforts of our time-worn and world-wise Eastern conservationists look like a nickel's worth of radium; and

"WHEREAS, Our worthy retiring president has earned his much merited spurs as a pathfinder through his ability to steam in a fog on an unknown and uncharted sea; therefore be it

"Resolved, That Mr. David H. Madsen be extended the appreciation and gratitude of all humans interested in conservation of the natural resources of the West," etc.

"Cap" Burghduff was one of the fire-eatingest members of our early days. Age tames us all, but "Cap" can still stir up quite a bit of smoke if he gets "riled." There is no use reminiscing, but I wish you could all have heard Bruce Nowlin when he got relaxed and started on some of his old Wyoming cowboy songs. It has been a great old crowd, and it is still great, and I am proud and happy to be associated with men of the type always gathered in these conventions, simple, sincere and honest, striving in their respective offices to do their part in helping to make of our Nation one of the greatest on earth.

As I dictate these words, I am well aware that I shall not speak them to you. Through the kindness of Mr. Barker they will be read by proxy, but I want you to know that it is through no fault of my own that I am not among you. Circumstances over which I have no control prevented my leaving Colorado, and it is the first meeting I have ever missed. I regret it more than I can say, but as one of the charter members, I want to say to you that you have a great Association, and one that is increasing in strength and usefulness with every passing year. It has a great work to do in the future, and there is no fear but that it will be done faithfully and well. More power to you!

If it is the pleasure of the members, I hope the meeting will be held in Denver in 1937. The State of Colorado extends its compliments, and a most cordial invitation to come to our Capital City next year. I thank you.

GAME AND FISH MANAGEMENT AS APPLIED IN CALIFORNIA

By HERBERT C. DAVIS, Executive Officer, California Division
of Fish and Game

We have here for distribution to the members of this Association the latest copy of the "California Conservationist." This little magazine is a popular publication put out by the Department of Natural Resources under the leadership of our good director, George D. Nordenholdt, who is right now talking to Mr. Gabrielson asking for an extra month on the duck season. I haven't been able to get Mr. Nordenholdt to come up and say a few words to you.

This publication ties in with our program of game management. We feel that the fish and game resources of the State can not be administered by the State alone. It requires the combined cooperation of all of the sportsmen's groups and conservationists. Therefore, this popular magazine on fish and game matters has been established to acquaint the people with the need and the manner of conservation. In addition to that, you are all familiar with our publication, "CALIFORNIA FISH AND GAME," which, we believe, and have been told by others, is one of the outstanding publications in the United States on fish and game subjects. That magazine, since the introduction of the new one, is becoming even more a place to record accurate scientific data and research.

The reason that we stress that phase of our work in game management is because this program in California hinges around four points. I like to look at our picture here as one of taking a piece of paper and saying that here is our game management program, supported with four corners.

The first one is to know all that is to be known of the biological habits of every species we deal with, whether it be fish or game. We must know the life history, migrations, feeding habits and everything to be known about the bird or fish. That is Corner 1, and for that purpose there is maintained in California a very extensive research organization. Most of it is contained within the Division of Fish and Game, some borrowed from two of our educational institutions—the University of California and Stanford University.

The second corner on the top of the page is the facility for propagation—either natural or artificial. We have tried in this State to develop the most modern, scientific and economic methods of artificial propagation of both fish and game, realizing, however, that they are merely supplements to what Nature is doing. A portion of our time is spent in carrying on this artificial propagation. The balance of our time on this particular corner of our program is spent in attempting, in cooperation with the U. S. Forest Service and other land management agencies, to reestablish, rebuild and recreate the natural propagating areas and in that connection we use the game refuge as well as the rest of the fellows.

The third corner is the one that is the latest innovation in California—the inventory of fish and game. We may know all there is to

know about the life history of some bird or beast and carry on with good knowledge what we may expect from that particular species. We may know all there is to know about propagation. But, we can not manage our fish and game unless we have something in the way of an inventory—we view fish and game management in California as a strictly merchandising business. The field and stream is the merchant's shelf; the fish in the stream and the game in the field are the goods on the shelf. The sportsman is the customer and his kill is the sale. The customary, old method of taking inventory was to count what was left at the end of the year. You know what you bought and had to start with, and you knew what was sold. You don't care what is left on the shelf.

We put into effect in this State a system to record the fish and game kill. When you go to purchase a fishing or hunting license in the State of California, you make out an application blank, giving your name, age and residence. In addition there is a place to tabulate how many pheasants you killed last year and where you killed them; how many doves or ducks; how many trout were taken; and the counties from which they came. Naturally this information includes the home county of the hunter, and the amount of traveling done in pursuit of game can be estimated. This statistical information is tabulated at the California State Fisheries Laboratory at Terminal Island, along with other statistics pertaining to the commercial fish catch and the kill of deer. The data are handled by punch card machines that furnish almost any kind of information—totals or special reports. I am only sorry Terminal Island is so far away that I can not take you there to show you the laboratory. Mr. W. L. Scofield, the director of the laboratory, and Miss Geraldine Conner, fisheries statistician, are both here and can give you any details you may want.

As a result of this, we believe we are now approaching the fundamentals of game management in being able to apply these merchandising methods. If we know where the game is today, by whom taken and in what quantities, we then are in a position to do something about replacement and protection. So, therefore, the third corner of our paper is made up of a program of inventory.

The fourth corner is one we are just starting on and it will be an innovation in game management so far as California is concerned. We are preparing to make a complete and comprehensive survey of every square inch of land in the State with reference to game and fish—a job that will probably take ten or fifteen years to complete, and if we had to pay for it in the ordinary methods it would cost several million dollars. We have gotten around that expense proposition, however, by an innovation in our patrol methods which provides for junior game wardens. These men will be trained to make these surveys at the same time they are patrolling their areas, which will be easy because we have a unique principle of law enforcement in California. We try to protect the game rather than apprehend the violator, and we believe the presence of our wardens in the community is more important than apprehension and punishment. We want to stop the fellow before he has taken over the limit of 25 trout rather than catch him after he has taken 100 and is going home with them. Catching him before he violates the law in this case would save 75 trout for somebody else.

Getting back to the survey, I may say it will include a complete and accurate record of every inch of stream and every acre of lake in the State of California, with a fairly good estimate as to carrying capacity in terms of fish and what needs to be done to improve the streams. In view of the records we have on the amount of fish taken out of any particular stream, we will know what we can do to improve our planting methods to secure proper distribution. For the most part, our inventory will give detailed information, and that is no small job when you stop to consider there are 25,000 miles of fishable streams.

We are not going to stop only with the water, but will take in the field itself. Every square acre will be surveyed and plotted on a map of the State. We have already a map which shows after careful surveys, the deer range in California—the maximum amount of country where we can hope to have deer in this State. The balance is unsuitable for deer or is essentially valley and agricultural lands. If you can imagine a similar map made on a large scale, accurate to a square township, to provide us with information as to the exact area suitable for every distinct species of game, you gentlemen who are charged with game management can realize what a tremendous help that would be. The maps I have here will be on display for your closer inspection. All of this is a part of a definite game management program.

I might divert here for a second to call your attention to the fact that the reason we have game management programs in California and operate on a business-like basis is because we have such a large State. It is 1100 miles from the Oregon line to the Mexican border, and if you wander along the coast you must travel 1300 miles instead of 1100. It is about 300 miles wide. We have a terrible time trying to keep 6,000,000 people, the fish and the game, all in the same place at the same time.

I would say the people of California are not so forward looking, but they have been driven to it now by necessity. Fortunately our large population has given us a large revenue so it is possible for the State to maintain some 400 employees to carry out this conservation work. It would be interesting some time for someone other than myself to sit down and write a lengthy paper on the subject of game management in the State of California, setting forth in detail the statistical and other information we utilize in carrying out our program. Perhaps some day when I have the urge, I might write such a thing for "CALIFORNIA FISH AND GAME" in order that the other states might benefit from the knowledge we have gained. Suffice it today to merely give you a brief outline of what we believe to be as well rounded, as complete and as comprehensive a program as you can find any place in the country as far as application of game management is concerned.

We apply exactly the same principles to the management of our commercial fisheries off the coast of this State; the fishing industry is a tremendous one, amounting to something like \$30,000,000 annually. For a number of years we have kept careful and complete records of the catches made by our commercial fishermen. I would like to give more details, but I can not do so in a fifteen minute talk. In closing I want to hark back to the inventory proposition to show how it works.

Believe it or not, the people of the State of California, during the 1934-35 season, legally killed about 500,000 rabbits. They killed about 800,000 ducks, over a million doves and more than a million quail. They

shot 50,000 pheasants in spite of the fact that the season is but six days long, had only been open for a couple of years and the pheasant is strictly an introduced bird in this State. We thought we were doing a big job when we planted thousands of birds a year, but Old Mother Nature must have been doing pretty well herself in propagating enough birds to permit such a large kill.

An analysis of this kill shows the necessity of applying merchandising methods to game management in California so that we can manage the game Nature put there rather than what we put there. It also impressed us, because we realize that our biggest problem is to rehabilitate, recreate and aid Nature rather than try to go into artificial propagation because we couldn't raise that many quail artificially unless sportsmen were willing to pay \$30 a year, which we could not ask of them.

We have maps that show the location and approximate number of every species of bird that has been planted in the State of California. If we study one of these maps, showing the plantings, we can check these planting areas against the statistical returns from the hunter. We can determine exactly how effective our planting was and whether or not it was safe to plant in areas where hunting is permitted or in closed areas where the only hunting is outside the refuges from the overflow of birds planted in the closed areas. We can find out whether the birds took hold.

We have maps for valley quail, Reeves pheasants, Chukor partridge, ring neck pheasants, and turkeys. We had no pheasants in California until we planted them, so those we have now are the result of our game management program. The Chukor is another introduced species, such as the pheasant, and we have not yet had an open season but hope to within five or six or seven years. Mr. Bade, how far do you want me to go?

BADE: About five years.

DAVIS: You are optimistic. This last map shows the areas in the State where the Fish and Game Commission operates a very comprehensive predatory animal control program. Our predatory animal control is a three-cornered one and consists of a council made up of a representative of the State Department of Agriculture, a representative of the U. S. Biological Survey and a representative of the State Fish and Game Commission. They sit down together to iron out the problems, and they have divided the State and all three agencies have their share of the work cut out for them. That map shows what we have attempted to undertake.

I am sorry we didn't bring over another map which is the patrol map showing a highly organized fish and game patrol which is under the jurisdiction of the commission but strictly under our control and one of our most highly organized bodies. The purpose of uniforming our men is that we believe the presence of a warden prevents violations. We have an under-cover squad to get the violators who get away from the uniformed men.

Before the conference is over, on our return from the trip to the Yountville Game Farm, we will take you for a ride on a portion of the fish and game naval patrol—California's miniature navy. We are the

only State that maintains a sizeable fleet and we would like you to see some of the boats.

All of these things combined constitute the fish and game management program of the State of California—life history research, propagation, inventory, surveys, publications and patrol. I submit it to you for what it is worth and what you may be able to get from it for application to your own State. I would welcome from you suggestions as to how we might improve on a program that we think is pretty good but needs improvement, and as far as we have facilities to do so, we would like to carry out suggestions you might be able to make.

Discussion Led by George K. Aiken, Oregon

MADSEN: I would like to ask Mr. Davis how many deer were killed?

DAVIS: About 22,000.

AIKEN: Probably it is out of place for Oregon to discuss game management because the Legislature has never seen fit to give it to our State.

The people at Bend, sportsmen, hotel owners and all of the other kindred industries that profit directly from the presence of fish and game in the Bend area have an organization that represents each of the several branches. They meet once a week and the larger groups, the chamber of commerce, meet to check up the actual income from the people of Bend to check on what they get from hunting. The editor of the "Bulletin" told me that they ascertained the tangible income to the people of Bend was into the thousands of dollars. I was surprised since then on four or five occasions where I have been called on to talk to Kiwanis clubs, when I made the statement of the income there was a terrific amount of interest; the changed attitude of a large number of people who had never considered game management from a commercial angle. The problem is how they could apply it to stock. I went to livestock organizations in a county where 65 cents of every dollar is from livestock and the livestock men could see the range being depleted and I tried to convey to them if in place of livestock they transform it into a wildlife area. We will have to educate our public that the fish and game can be transformed into dollars and cents for the county.

I don't believe game management as you have it in California can be accomplished in Oregon. Some of it is being done. Our big job for protection of deer is to provide winter range and I am glad to tell you that there are among the stockmen some who buy game and fish licenses and we feel there is no real conflict of interest between the stockmen. But we have to educate them to what game means to them and to other groups of men.

We believe if many of us do that, protection of our game will be accomplished and in that way we can get it more or less by indirect methods until the legislature reaches a point whereby we can do what you are doing in California.

Some of it will be discussed more at length this afternoon, especially as regards the propagation of pheasants. No area has been set

aside, but we will, as a result of research being done by the Biological Survey in cooperation with the Wildlife Institute and the Oregon College, get a scientific program in Oregon, but it can not be done until public opinion has made it possible.

The people as a whole think they know more about certain things than the Legislature or our Commission. The program in our State is to get public opinion for us and among our business men to translate it into dollars and cents.

DAVIS: In meeting your public you know things in California are different. The Legislature here in its wisdom has never given jurisdiction to fix seasons, but we have developed this program in spite of that and it is done by popular opinion. The Fish and Game Commission of California has always begged and pleaded with the sportsmen to organize and they are the ones who get the stuff out of the Legislature if necessary. When the Commission determines what is needed, we can depend on the sportsmen going to the Legislature and there is quite a number of them and a lot of votes, so they listen.

Our situation is the same as yours and I think we have been fortunate in developing methods to get along in spite of it. These charts, I will leave here showing the amount of game killed and number of hunters killing them.

In spite of the tremendous number of quail killed, I mentioned over a million, the season is open only six weeks and the bag limit 15 per day, 30 per week, that is only 22.8 quail killed per hunter. On mule deer we have a seasonal limit of one; on other deer, two. The average for the State is about 1.2 deer for each successful hunter.

BARKER: Mr. Aiken, I would like to ask you what is the opposition of the Legislature in Oregon to giving the Game Commission the regulatory powers it needs?

AIKEN: I don't believe there is a real opposition as far as I know. It has never been presented; it has just been accepted that the Legislature would know better than the Game Commission did.

BARKER: Couldn't you enlist the help of your stockmen? It seems the other users of the range are just as vitally interested in giving the Commission sufficient authority. Couldn't you enlist their aid?

AIKEN: I think so, but we have been making one mistake. We have spent too much of our time talking to the sportsmen who are educated but we haven't taken our message to the business men and other users to let them see it is a State benefit.

FINLEY: It is pretty well known, of course, that birds of different species develop according to conditions. In regard to our native species, the question arises as to the introduction of foreign species and the effect. I am wondering whether a study has been made here in California of the effect of birds like the Chukor partridge upon the native birds or whether they are introducing foreign species—just taking the results as they come?

DAVIS: I can answer that. We are very cagey about the introduction of exotic species of any kind or description. In the bird program, I think Mr. Bade will agree with me that the introduction of the Chukor partridge, pheasant or any other species, has been in areas

where they were peculiarly suited and we had no native game. In other words, the Chukor partridge was selected by the State of California for the reason it fills in a gap in an area where it will produce hunting and where there is no native game for it to compete with. We have been careful in conducting studies and watching results on having one species crowding out another.

FINLEY: You know that species does not spread into other territory?

DAVIS: The life history of the Chukor indicates its range and the type of country it will stay in. It hasn't been planted in sufficient quantities to know whether it will spread or compete with others. As far as we can see now there will be a close line of demarcation and there will be considerable space for both species.

HUNTER: You might tell Mr. Finley we have Chukors with valley quail at the Chino Game Farm and there is no evidence of conflict.

FINLEY: The same as with the fish in the streams. We know of a good many streams that have been ruined from the standpoint of native species by introduction of foreign species, and that is a very vital question which needs a lot of study in all of the western states.

AIKEN: Many of you people have studied the Hungarian partridge effect on the pheasant. Some think the Hungarian a competitor with the pheasant. Some say it is not true, but some of the sportsmen report the complete disappearance of all the pheasants in one county.

DAVIS: I can't give you any information as to California because the Hungarian hasn't been successful in this State and we have ceased to propagate it and plant it.

MacDONALD: In Montana we have both and they are very abundant and seem to get along very well in the same area, and in other places we have the Chinese pheasants and in the next county adjacent to them the Hungarian and they prove to be very popular in Montana with the sportsmen. We never noticed any competition.

DELEGATE: Was that true of the Hungarian and blue grouse?

MacDONALD: I don't believe we have any other species. Our blue grouse are up in the timber and the Hungarian in the open field.

FOSTER: Mr. Davis, may we divert from the game? We have heard considerable talk of the striped bass in California and the effect they may have had with your native fish in your rivers.

DAVIS: That's what the lawyers would call a moot question. Frankly I would call it a moot question—any way you answer it, you're wrong. I don't believe we have conducted a sufficient amount of research to say definitely, but taking the life history it would stand to reason it would give competition. Possibly they are the reason for the decline of the run of salmon in the Sacramento and San Joaquin rivers, but I am inclined to think it is somewhat negligible. The decline may have been caused by agriculture. I think what you have in mind is a fear in Oregon of the migration of the striped bass.

FOSTER: They have gotten into Coos Bay.

DAVIS: How serious it might be is a question. I doubt it will give you a very serious problem. I am familiar with the Columbia River and they won't go beyond the brackish water.

FOSTER: They have gotten beyond the brackish water though. They are at the Bonneville Dam.

DAVIS: Well, like humans, they may wander off the reservation. We will soon be able to answer your questions in Oregon as we have just commenced a comprehensive research on the feeding habits, migrations, and life history of the striped bass to carry on where we left off a number of years ago.

DELEGATE: I would like to know what you have done regarding the watering of your birds in the dry areas.

DAVIS: We have done something, but not much. I have a young man who can answer that question. Mr. True, will you tell them what has been done?

TRUE: The only thing done was in a series of quail refuges in southern California, some thirty, all of which are not as well supplied with water as we would like. We have developed it somewhat and supplemented it with tanks, 50 gallon tanks. These are not used during the winter. We have found it satisfactory but we have not tried an artificial supply alone. We use the tanks to supplement the natural supply.

MADSEN: I think one of the most important things any commission can undertake is to determine more definitely the causes for the great fluctuations in pheasants in certain areas. In my own State we started without any pheasants and at one time we had a limited distribution, but they are now concentrated in certain places and no longer exist in some areas where they were once planted. We also have great concentration of valley quail. Something happens after they rise to a certain point to cause their disappearance which isn't traceable to hunters. It seems to us one of the important jobs to be undertaken is an investigation of these fluctuations.

MANAGEMENT OF BIG GAME THROUGH SPECIAL SEASONS

By NEWELL B. COOK, State Game Commissioner, Utah

I just have a few remarks to make here about what we have been doing in our State for the last ten or fifteen years. The State of Utah is somewhat different from other states that have expressed themselves inasmuch as the game commissioner in our State has authority to open and close districts, decree bag limits, etc. The entire fish and game program is in the hands of the State Fish and Game Commissioner.

I am quite interested in the scientific research of the State of California. We are doing without going into research, but we want to ask other States to send their findings on to us so that we can

apply research because we do not have money enough to get it within our own State.

Regarding game management by special seasons, in the State of Utah we have three separate problems in game management. Speaking of big game, we have produced some 100,000 mule deer in Utah. That has been done through game preserves, not in the full sense, however; game preserves used right along with livestock with not one foot set aside for game exclusively.

The buck law has been another factor and then partial control of predators has developed a deer herd from nothing to a splendid one at the present time. We claim, and we quarrel now with the Federal government, that we own the game. In Utah we have 25,000,000 acres of our land under the control of the U. S. Department of the Interior under the Taylor Grazing Act at the present time. We have no range there for State game, so to speak. Then we have our intermediate ranges on which our game herds must winter—about 14 per cent are privately owned, the remainder being intermediate between the national forest and the Taylor Grazing Act, and then we have our summer grazing range that is owned by the U. S. Department of Agriculture through the national forests, besides four sections in each township are owned by the State Land Board. If you find anything there that can be worked out with that conglomeration of management, I can't see it.

I am one of those who believe that this land and all of the organic resources should be under one governing body and not passed to every Tom, Dick and Harry who wants a hand in it. We don't want to turn it completely over to the Federal government, but there must be some halfway ground where we can work out a real management plan.

For 20 years we were very zealous in protecting the female of the deer herd. We taught sportsmen to respect it and we produced that deer herd. Producing it is one thing and managing it after you have produced it is an entirely different question. It became necessary to remove numbers of female deer in congested areas because of the fact they were over-running privately owned property and revenue was not available with which to pay the damage done. The deer were grazing until the foliage upon which they must live was reduced to practically nothing. We then had to revolutionize our entire system and instead of saying to the men to whom for 20 years we had said: "Don't kill the female," we had to turn around and tell them to go down and kill those females. Not being acquainted with range conditions, the sportsmen of our State bitterly resented that move. I think we had over-educated our sportsmen. When we called them in and said, "See here, we will have our regular buck season, and we will have to go into the congested areas and remove the female deer, under special permit," many of the sportsmen bought the permits to save the deer and did not hunt. Many of them did not realize the situation and we went over the range with them. We showed them mountain mahogany, cliff rose, juniper, thousands of acres of it grazed until a deer standing on its hind feet could reach no more. It was hard to show those fellows who did not understand the range that it was necessary to reduce the game.

On the other hand, there was a bunch of sportsmen who took up these permits and went out to remove these deer at the request of the

game department and shot everything that moved. We did not have money enough to man such a hunt properly. We put them out in 15's and 20's and tried to have one man cover the group, but they were lost in the country. Consequently we not only removed in those hunts the necessary number of deer, but our shooting sportsmen killed far in excess of what they should and left them to decompose on the ground.

I am here to learn something of game management when no revenue is available. The hunt has been unwholesome on the morale of the sportsmen. They believe we have, because we had congested areas, an over-population of deer. Consequently we are finding female deer killed and left on the range to decompose in areas where game is very scarce. We have tried various means of checking the permits—bring in so many a day. We have tried in one way and another to get the sportsmen to harvest that surplus of game. I am sorry I can't report it has been successful.

Mr. Davis said he had six million people in California. We have 5 per cent of our land cultivated and that fringes our wintering deer area. Our population is not a factor. We have 500,000 people in our State to kill 20,000 deer.

On the commercial end of it, in 1931 we put out a questionnaire at all checking stations at deer ranges, which we have continued until now. We checked them not only for size and weight, but we checked the hunter and made him show his ticket and advise how much money he spent from the time he left home until he returned for the various things required for the hunt. We proved to the people of the State of Utah that it was the best pay roll that they had in the State. We have proved that deer hunting circulates one and a half million dollars. We have over-educated our sportsmen and now not only the sportsmen refuse to let us handle our game, but the civic clubs have told us we can't kill it so that the bankers and all can have their revenue. I am here now not to tell you how to manage big game, but to ask you how. We have produced a game herd in Utah second to none. Great petitions are filed on both sides, one asking removal, the other protesting removal. With our livestock industry and all of the factors entering in it, the livestock men say to kill them and then you have the civic clubs protesting. We do the best we can with the range considered and we are in trouble all of the time. How can we get harmony and control the situation and do the intelligent thing? I am listening and asking you for any suggestions.

Discussion Led by A J. Martin, Wyoming

MADSEN: I don't know about Newell Cook, he is a pessimistic fellow. I don't want you to get the impression that the difficulties of managing game are such as not to be encouraging. I happened to be in Pennsylvania when they opened the season on does. They had killed 52 hunters and I don't know how many deer up to the time I left. The benefits to be derived from such killing are such to encourage all the game commissioners to ask for authority from legislatures to regulate seasons. This deer season has presented a serious problem, but I do believe that every game commission should have certain

regulatory powers affecting game seasons, and I think it is the only method whereby it can be done successfully.

COOK: I am not discouraged.

AIKEN: In your checking, do you check rifles and deer? I had a report from the warden telling number of deer killed and method and we suggested if you could tell by firing a rifle into a block of wood you would have ballistic evidence.

COOK: We don't allow anything smaller than 25-35 to go on the range, but that is as far as the check is concerned.

MARTIN: I would like to state that Wyoming has such a law and the law reads the bullet shall not be less than 23/100 of an inch in diameter, the cartridge and bullet 2 inches over all, with soft point bullet for big game. That does away with the smaller bore guns.

While I have the floor, I wish to concur with Mr. Cook in his point of view on game management. I think if any State has all the complications of the rest of the states, it is Wyoming. We are up against the factor, not of the sportsmen, but of everyone. We have livestock and our summer range is sufficient, but we are shy on winter range that Cook is talking about. When winter comes, 90 per cent of our game, especially the deer, is on private holdings. That condition exists and we have the same trouble he has in disposing of it.

You people mixed up with the livestock business all appreciate what I am going to say about the elk. It was those herds of elk fed and babied and taken care of that have been a trouble to the game department. For years they have been a source of nuisance to livestock men and they wanted to get rid of them. We got quite a lot of criticism from everybody, especially home people, but it was to the effect that they killed everything, bulls, cows and calves, which was a fact, but it was in the very heart of the winter range, and during the kill they got rid of the particular elk it was necessary to get rid of.

Our elk herd went through Jackson Hole in better condition than in former years. It had a tendency to put them back on the range where they belonged and during that we had two winters. The elk weathered them all right and when we thought they were backing up again, there came another winter and they went through that. It is the public we are fighting more than the game. We need solely a winter range.

BARKER: We are all here to learn in this matter.

FINLEY: I never thought at one time we would have an open elk season in Oregon, but we had one during the past two years. The State has not enough to hire wardens, but it has been done in a splendid manner in cooperation with the U. S. Forest Service—the two together worked it out far better than we thought it could be done. I don't know what it has been in other states.

BARKER: In our State, they have helped us.

COOK: In Utah, it would take the army to help.

BARKER: Any other discussion? I would like to say one word on what we have done in New Mexico in special seasons on antelope. We have nice herds in different parts of the State, not more than

10,000 all told. They have increased three to four hundred per cent in the last ten or twelve years and they are doing very well. There is no reason why we should not be taking mature bucks, and we have handled it by issuing so many permits, charging a fee of \$5 in addition to the regular license, which is enough to pay the cost of supervising the hunt. We have only killed a limited number, not as many as we could spare, but we are trying to supervise and so educate the sportsmen and public so that they will see we are managing and not destroying their herds.

The first year we advertised that we had 300 permits to sell; the sportsmen refused to buy the permits as they had protected the antelope and their organization had paid a reward for conviction for killing antelope. All they could see was that the Game Commission was going to tear down in one season what they had been doing over a period of years. As a result, only 64, 16 of whom were non-residents, purchased permits when we advertised for 300. However, each one of them got a nice antelope buck and during the entire season there were only five violations of the law. We got by in excellent shape. There was no kick-back. They came back with high praise because we supervised the hunt. It cost all we got and more, but they went back satisfied. The following year we sold all the permits but not everyone got his animal. The third season we also sold all permits offered.

I am now getting requests to know if we will have an antelope season. If you can prove to the sportsmen that we are not going to destroy what they consider "their game" they will cooperate.

CALIFORNIA'S JUNIOR GAME PATROL

By A. T. JERGINs, Fish and Game Commissioner, California

A short time ago I had an opportunity to visit one of our prisons here and in that prison I never felt so ashamed in all my life. I found something like 6500 boys, the average age of 22 years. Now when we gather in a group like this you invariably find the men say we haven't money to do this nor wardens to do that. I am going to give an illustration of what I initiated some three years ago in a city of 50,000 people in which juvenile crime was so bad we could not keep chandeliers on light standards.

This town is located in a district entirely surrounded by other cities, there is no distinct boundary between them. The chief called me in and said: "Jergins, what am I going to do? We have only so much money and I just simply can not take care of them." I said, "Let's try a scheme. The only difference between men and boys is men are grownup boys. A man craves the same things as a boy." Now I don't presume there would be a man in this room today if he did not feel he was doing something for his fellowmen and for the preservation for posterity of fish and game life of our country. I am speaking not alone of us who occupy positions without salary and devote as much time as any man can possibly imagine..

We went ahead and organized a junior detective force. Starting in this town of 50,000 people, the crime in that town has almost

become nil. We have 4700 detectives and it does not cost us a penny. If a house is broken into, if an automobile is stolen, you would be surprised with the little kindness and teaching, how much work and how much good these boys accomplished. They are everywhere. They take just as much pride in that little 12½-cent badge as you would in your diamond studded badge. Therefore, I am preparing a setup to establish in the State of California a junior warden class of junior wardens of boys from eight years up in which the wardens of the various districts will give at least one evening a week in their respective districts and call in these boys and teach them what it means by killing a hen pheasant. For instance, a short time ago one of our wardens at Marysville saw a boy kill a setting pheasant with a .22 rifle. Instead of knocking the boy over and arresting the lad he went to his father and then to the school. This was an excellent opportunity to teach the entire lot of boys a lesson—bringing in the eggs ready to hatch and showing the whole class how many pheasants were killed when he did not realize what he was doing. You would be surprised at the effect of that illustration. It did more good than any other lesson in the district. I really believe that if that rule were adopted it would be the answer to all questions about your inability to control out of season shooting. If we could just universally start a school for junior wardens, give the boys a little badge and once a year give them a picnic or barbeque, I think it would be doing a great deal towards stopping the 100 per cent overcrowded conditions in our penitentiaries.

PROGRESS IN ADMINISTRATION OF THE PUBLIC DOMAIN

By G. M. KERR, Division of Grazing, U. S. Department of Interior

It is a great pleasure to me to be present. For that reason I am extremely glad that Mr. Molohon could not be here although he was very disappointed at not being able to be with you.

The Taylor Grazing Act became a law June 28, 1934. The purpose of this act was to stop injury to the public domain, public grazing lands, due to overgrazing and soil erosion, and to provide proper regulation of the public ranges, improve, develop them, to stabilize the livestock industry dependent on that public range and introduce different seasons thereon. As most of you western men know, the public domain that came under the administration of the Taylor Grazing Act was the leavings from years of settlement and appropriation of one sort or another, national parks, forest service, reclamation, homesteads, etc. For a number of years little interest was shown in the use that was being made of that land. No one took it upon himself to supervise its use in any way and as a result the man on the ground, the stockman in most cases, was the only one that could and did use the public domain as an individual. We had of course the game which, because of overuse of the public domain by stock, was being driven back to the higher ranges, other areas and sometimes into oblivion.

With the passage of the act, however, there was immediate interest taken in the public land by various agencies who apparently were

content or had simply failed to see the possibilities, and as a result several million acres were requested by this bureau and that and it has complicated the situation quite a good deal. Our problem, however, has not been the settling of that so much as it has been getting the Taylor Act actually into operation. In this administration in order to provide in so far as possible a proper use of the public range, a use to the best interests and advantage of those people who were dependent upon it, the act provided and the department agreed to the setting up of advisory boards consisting of men who were active livestock operators and could be relied upon in the granting of permits or licenses under the act. These boards were elected by the people of their various districts. It is well to bear this type of operation in mind when you consider the problem of game management in connection with the public domain.

In the original act 80 million acres were set up as a possible grazing district, about one-half of the actual public domain area. As a result, 37 out of a possible 52 districts have been set up. Advisory boards consisting of from 8 to 23 members were elected and have passed on applications, considering them and making recommendations. In these 37 districts there have been in the neighborhood of 15,500 licenses recommended and the licenses involved approximately 1,600,000 cattle, 6,000,000 sheep, 150,000 horses and 200,000 goats. These advisory boards have only recommendatory powers. Their recommendations must be fair, must be reasonable and must be according to the provisions of the act. The secretary and the Department of Grazing, of course, reserve the right to accept or reject recommendations made by the advisory boards.

In the amendments passed in the bill by the last session of congress the 80 million acre limitation was raised and we are now permitted to increase the acreage to 142 million acres. There is some question as to whether all of the 52 grazing districts originally recommended by stockmen will now be set up. We follow the principles in the original meetings of going to the people in the districts or proposed districts and giving them an opportunity to either accept the offer to set up a grazing district or to refuse it. These districts are not forced on the people, at least not at the present time.

In line with that we are holding meetings in Wyoming, Montana, Idaho and Nevada. Those meetings are to take care of the big bulk of the public domain in that area. Two districts in Arizona, one in Colorado and an additional district in Oregon might possibly be set up later.

On the results of this work of the last two years looking in a general way at the work accomplished, I think we have something to be proud of. Certainly we have done a tremendous amount of work. In the range improvement we are disappointed, and probably will be for some years to come. Any ranges that are as sadly depleted as many of these are will take a long time to be brought back to original or near original condition. We are working towards that just as fast as we can.

In the first licenses granted in 1935, all nomadic stock was eliminated. In the past spring and summer meetings at which spring and summer applications were considered actual cuts were made. These cuts, however, were not as large as are needed and we will have to make additional cuts which we know, but fine points of actual man-

agement will require detailed supervising of the public ranges themselves as well as the properties which the stockmen are using and which they must have in order to get a license or permit under the Taylor Act. I think we have a program of range and property supervision going on at the present time, not moving too fast, but moving, and with each district in which work is completed we will be able to go ahead and get the stock on the range somewhere near the actual carrying capacity. In New Mexico and Arizona allotments are being worked out this summer. In some other districts allotments are enough advanced so that by the first of the year short term permits may be issued, but they can not be issued, however, until we get nearer the actual carrying capacity of the range and stock reduced to that capacity.

Now as to the administration relating to wildlife—that is one thing we were confronted with immediately upon starting out with the administration. At the beginning, application had been made by the Biological Survey, for, I believe, eleven game refuges covering some ten million acres of land. Since that time six additional have been proposed. Many of them have been approved, all of them have some land not on public domain, and others are outside of grazing districts over which we have no control. The only thing in those states is to assist as much as possible the Biological Survey or any other agency in getting direct boards through which they must go. In New Mexico there is a conservation plan working out which we feel is the ideal setup as far as game people and the stockmen are concerned. If the wildlife people and stockmen can be brought together on common footing, something can be obtained. If not, there is going to be a gap which will never be spanned. It will be necessary for you people to get together before we can hope to do an intelligent job as far as your game problems are concerned. The bulk of the stockmen are not antagonistic to game. Some are, of course, hot. If we could keep those hot stockmen and hot wildlife men out of it, I think those less hot might work out a satisfactory understanding. But bear in mind the process that we follow in presenting our problems to the advisory boards, getting their recommendation. Here would be the plan that we would follow in cases of game problems. Suppose one of your state commissioners wants certain areas set up for some particular species of game. Your recommendation or application would have to be presented to the advisory board. If you come with a general recommendation that deer be protected, we can not do much with it. Stockmen will not consider it seriously. If by using your knowledge of game problems and your game refuges you can work out a plan and come to the advisory board and say, "We want preference given to 5000 deer in this particular district, it is the natural range for them and they will cover a certain territory." We can work with that. I don't think it would be any question but what this could be worked out to mutual satisfaction. Preference is given in the case of the Biological Survey to refuges that have been set up. There is dual control there and preference is given to the numbers of game that were set up by the Biological Survey in dual and cooperative work on various refuges. They were given first right and after they are taken care of whatever is left is distributed among livestock. We can work out the same thing on game problems.

In New Mexico where they have a representative on every advisory board they were given an opportunity to have the livestock men on the board, and in this particular region they can present the game problem much better than the game men themselves. If we had an organization where we could employ enough game men we could work out the problem, but we have not and there is no hope for a long time before we can get it. In the meantime we can not stand still, but would recommend to the commissioners that you follow the plan similar to New Mexico along that line. I am sure if you do that, our problem and your problem would be greatly facilitated.

Discussion Led by Amos Eckert, Idaho

ECKERT: I am very glad to hear the talk that Mr. Kerr gave on the Public Domain. I know we are all interested from a game standpoint and other ways. We have 10 million acres of Public Domain in the State of Idaho. There is a question in there that seems to me might be clarified. I might say I am interested in the Public Domain both by game and stock reasons. I might mention first in the commensurate standpoint we feel we should have commensurability with game as well as livestock. We have one district already in the State and I have a right to run stock on the first district. I had to reduce such stock 25 per cent on the law of commensurate right. Dropping over to the game side, they should have a commensurate right from some standpoint, but I don't believe it has been mentioned in the Taylor Act. I have gone among stockmen and they believe we should have commensurability with the game; have that priority right and blanket consideration. Some stockmen and game men are opposed, but if we could insert in the Taylor bill a provision as to whether we have that right it will overcome future trouble. I am not talking contrary to either way because you can see my problem as I have cattle on the range. I had to reduce 25 per cent and was glad to do it. Dropping back to the game managing plan, if we could have an area set aside under the Taylor bill in the Public Domain, a small tract administered by the State, the surplus could be removed or scattered out and I know it would be appreciated by the sportsmen and a lot of the stockmen. ..

Getting back to the game managing plan, we have no game commission in Idaho and I happen to be the game warden there and once in a while I have to get up on my hind legs and talk out. When I first came in we had game refuges and preserves. We were growing game with no way to market it or harvest our crops. We asked the legislature to make it so that the game warden could open any game preserve or elsewhere for a limited number of game under a drawing permit where investigation showed the game should be thinned, removed or scattered; the numbers to be designated by the game warden for removal and return to the Public Domain.

We are limited on winter ranges practically all over the State. I might mention our 4000 antelope in one district which has not been open for years and where the winter range is rather limited. Three years ago we decided to remove 150 bucks, which we did through a drawing for permits. We put out a call for applicants and issued licenses to the lucky ones. Without this removal of bucks the herd would have been exterminated owing to lack of range. We have continued these

hunts and are going to have six special hunts this year. I think if you are going to harvest a crop, our way is the best.

Regarding the Taylor Grazing Act, we will work in harmony if they will give us blanket consideration for certain areas.

AIKEN: In arriving at commensurability under the Taylor Grazing Act, is it a fixed quantity or is it to grow, or the wildlife to increase? In other words, assuming the Taylor Grazing Act will do what it should—bring back the range—and the present capacity of livestock double or remain fixed, while the livestock industry gets the benefit. How are we going to arrive at commensurability?

BARKER: Two times zero is still zero. On lots of the public domain land at the present time the game is pretty near to zero and in my opinion on such areas we are certainly going to have to increase the game although you may be decreasing the livestock in order to bring back the range. In New Mexico the game is entitled to a reasonable use of all of the public domain land, you can call it commensurability if you wish, by virtue of the fact that it was there first and would still be there if it were not for range depletion or some other factor. It is entitled to the use, to a reasonable extent, of all public domain land. That is the heart of our plan which has been recognized by the Secretary of the Interior, and which we are operating under. We state definitely what our objective is. For example, if we have a grazing district, let's say, of 1000 sections of land in it that are suitable to the grazing of antelope, we state in our plan what we propose to do. We propose to raise one, two or three antelope per section and so far the stockmen have agreed to the objective.

The areas are so vast in all of the Public Domain that even though you don't have a high number per section, you have so many sections of good range that if you get two or three per section you have more antelope than you need. For instance, we have one little grazing district—the south central district—where I believe there are 1200 sections of good antelope range. At the present time the herds will figure about one-third antelope to the section. Our objective is to build that herd up so that it will be $2\frac{1}{2}$ antelope to the section. In other words, 3000 antelope is the objective on that range and the grazing district accepted that as legitimate. The stockmen do want to know definitely what we are going to do. They don't want generalities.

Many of the commissioners have interest in the Public Domain. I would like to hear more on this before we pass on. Any questions you wish to ask, Mr. Kerr will answer.

COOK: New Mexico seems to have an entirely different setup of livestock men than Utah. When you set up your grazing board, you have the right to appoint your members?

BARKER: Yes, we have that right.

COOK: Where did you get it?

BARKER: Through a regulation, based upon our recommendation, of the Secretary of the Interior, just as other rules are fixed under the Taylor Grazing Act to administer the Public Domain.

COOK: In Utah we have grazing districts set up upon the recommendations of the livestock men to the committee.

KERR: Except that in New Mexico, the plan had been worked out as you remember, in February, 1935. The plan was discussed and presented to the Secretary at that time. That plan was approved for that State, and a similar agreement has not been drawn up for the other states. Until it is, it will be impossible to appoint a game man to any of these boards. As soon as it is drawn up and accepted, you can appoint representatives to each of the boards now operating in Utah.

COOK: What I am trying to get at is this: I don't believe the federal domain will ever be restocked by appointing committees of sportsmen, or livestock men, or any other people who deteriorated that range and ask them to bring it back. I don't believe it can ever be done.

KERR: By inference, Mr. Cook, I want to assure you it can. As I said, the recommendations of the Advisory Board must be reasonable, fair and according to the act. They are held by those three things. If a carrying capacity of a grazing district is 1000 and they want to make it 2000 they are unreasonable. We will get the carrying capacity down and in the same way get the consideration of your public.

COOK: Living up to the spirit of the act, has the Secretary of the Interior lived up to the act by Congress in which the Secretary set up committees of landowners and livestock men?

KERR: He has not set up you state men, no. I don't think that it is required under the act that he do that.

COOK: Then it does not mean what it says. Another question occurs to me. Elliott Barker has a bunch of livestock men who work with him. You know my livestock men. We try to get wildlife men and appointed committees, including the secretary of the Wool Growers' Association, cattlemen's association who would not stop to organize such a committee. As soon as they hear what we have to say, they resign. They won't cooperate. I maintain it is the duty of the Secretary of the Interior through the Grazing Department to live up to the spirit to organize such a committee.

KERR: We can do it. We are empowered to do it, but can we do it as well as you can do it yourselves? That's the thing we are wanting to get—your ideas and then work it out according to the plans that are in your judgment the best.

COOK: You were at Denver when our little group of game commissioners were there with the livestock men ready to organize. When I asked the wool growers and the stockmen would such a plan as the New Mexico plan work in Utah, I was very plainly told "no." They said, one head of game is one too many. All I am asking is, is the Secretary of the Interior to say where you are to have a new member in your family? We have a game man ready to talk as to whether this act allows him or not. What are we going to do with a problem like that?

KERR: There is no question but what the problem in Utah is much more of a problem than in New Mexico. In the first place, as Mr. Cook said this morning, he indicated there are more sheep in the State by a good deal than should be there for the good of the private

land, forest land or public domain land, and it will be hard to work out a plan similar to the New Mexico plan.

COOK: I wish you would appoint that committee and you would at least hear us.

MARTIN: Mr. Chairman, I think our conditions in Wyoming are practically the same as Mr. Cook is talking about. The only difference is we have a wildlife organization, but it wasn't through the stockmen we got it. It was from the fact that the sportsmen did the organizing and our State is organized under districts. There is no organization of districts with the exception of one livestock district set up in Wyoming and that is in a locality where our game is not affected. It doesn't affect our game in any way, but we are fearful of the time when it is set up so that it will affect our antelope.

We have a peculiar situation there. We have three antelope districts in the State—the Red Desert herd, the eastern Wyoming herd and the Park County herds. The Red Desert herd is in a peculiar situation as a lot of it is on land owned by the railroad company and leased by stockmen. Every other section the government claims, so there is a question we are up against—how we are going to get along with our antelope herd on that?

Our other herd in the eastern part of the State is on privately owned land taken up by the dry farmers. I might say with the thousands of antelope running wild and getting along fine and then the stockmen and now the dry farmers are fighting our antelope, we have no chance with them there whatsoever. There is a move now to take that land out of circulation and give it back to the government, but we have no information on that and so don't know how to work on it from that angle.

In getting back to the Park County herd, it is on private property and that is another angle we have to thresh out among ourselves. We are not thinking of the Taylor Grazing Act. We can't get any assurance of where we are going to work. This Rock Springs meeting you just spoke of is the nearest I ever heard of anything and I didn't know of it until today.

MADSEN: I want to ask Mr. Kerr a question, which I don't know if he can answer. In carrying out the provisions of the Taylor Grazing Act, you first take into consideration the condition of the range and what its growing capacity is. You then consider the number of livestock on the range and the people who own and graze them there, and their community property. All that you have done. I mean you are in the position of doing. In bringing this about, you meet with cattle and sheep growers individually and collectively and you carry out that part of the act. Is it also your responsibility to contact and cooperate with other citizens of the State with a view of establishing game in the proper percentage on that same range?

KERR: I wouldn't say that the act specified we should. It says game shall be protected.

DARLING: May I introduce just a sentence? When it came to the regulation of game we found that the Secretary of the Interior might make such regulations as he thought necessary to conserve natural resources which we all thought included game. Upon investi-

gation, the Attorney General ruled that natural resources did not include wildlife. There is no such regulation in that bill.

BARKER: It says the Secretary of the Interior shall by suitable rules and regulations provide for cooperation with state agencies interested in the propagation and protection of wildlife. If I may add an additional phrase, I think the final responsibility to provide those regulations certainly is with the Secretary of the Interior, but Mr. Kerr has said the Department of the Interior is short of help and doesn't have the men, and if I were a game commissioner, I would ask the help of the sportsmen and stockmen, and I would write out for the Secretary's signature, a regulation for what I wanted and put him on the spot and make him either sign it or give a counter proposal. He would have to accept it or turn me down. I would like to see these other commissioners here write out regulations as to what they want the Secretary to sign and put it up to him. You may not get what you want, but you will put him on the spot and you will get something. It may be "no" but you will know where to get something else. We worked for what we got in New Mexico, but finally he signed on the dotted line. If you all know what you do want and what regulations you want and will write it out and put it square up to the Department, you will get somewhere with it.

AIKEN: We have a state grazing district, the Jordan Valley, that operated under the State law two years prior to the Taylor Grazing Act, known as Oregon District 4. Grass has come back as a result of the regulation. Much growth can now be found which was not there for the previous 15 years. It will bring grass back if properly regulated. Weather of course makes a lot of difference. What we want to know is whether wildlife is to be regulated in the increase, or is to remain stationary and stagnant.

MARTIN: I do feel like they can bring the grass back with regulation, but my thought of wildlife on this same area is where there isn't enough grass on the area to support the game, they are overgrazing.

FINLEY: May I ask in the New Mexico plan did you ask for any area to be set aside solely for the conservation of game?

BARKER: No, we haven't asked for specific areas. We asked that on areas of the highest value for wildlife that preference to wildlife shall be given on those areas. The wording is very similar to the preference program Mr. Darling had on his Biological Survey setup.

FINLEY: Suppose there is a certain area you want to conserve for antelope and you prefer to have it set aside—don't you think there should be a certain amount in these hereditary ranges set aside solely for that?

BARKER: Yes, if there is a need for it.

FINLEY: How do you get it in that case?

BARKER: I said a little while ago, we didn't plan for any specific areas. The game management plan is not complete. We are asking for a big area for mountain sheep and the grazing district told us we could have it.

FINLEY: Solely for mountain sheep?

BARKER: With a limited amount of cattle, your mountain sheep will be given preference, and an area surrounding it 10 miles in width will be maintained perpetually against the use of domestic sheep and devoted to cattle only because of disease our domestic sheep may transmit to the mountain sheep and they have agreed to devote that area primarily to wildlife. It hasn't been formally approved and it's not quite complete, but it has been discussed often and they have unanimously agreed to our proposal.

FINLEY: We have been unable to get through the Hart Mountain antelope range as we wanted. I understand there is one area set aside in Nevada for the protection of mountain sheep, the only area in the country set aside solely for that purpose. We would like to have certain areas set aside solely for that purpose.

KERR: On that Hart Mountain reserve, the plan as originally set up was a refuge similar to the others where the Biological Survey and the Division of Grazing would administer it and there would be different uses. That plan was approved and then the plan was changed and it is now to be solely used by antelope. This plan is now under consideration.

MACDONALD: Under the plan, how much consideration are the sportsmen to receive from these boards? They are outvoted 5 or 6 to 1.

BARKER: Yes. They are outvoted when it comes to an actual vote. Of course, they wouldn't have a majority because that would be among the stockmen.

MACDONALD: Is the migratory wildlife to be given any consideration in these districts?

BARKER: Yes, the regulation approved by the Secretary makes that mandatory.

MACDONALD: That they give some consideration to wildlife? We have endeavored to work from the bottom up, but have not been able to accomplish anything at all. We have one man administering grazing in the State and we have asked him to let us know when the meetings were held or to be held and the district set up, and he has been very evasive and he finally popped up and said the trouble with the sportsmen is they are valuing the wildlife too high. Shortly after that they held an indignation meeting. Our best plan would be to accept your suggestion and start from the top down.

BARKER: I think you have a basis for it there.

MADSEN: Mr. Chairman. I would like to know if this group believes there can be such a thing on a desert area of this country as a dual use of range by domestic sheep and wild sheep? I think it is agreed they are incompatible. In the next place, when every sheep herd of two or three thousand head is known to take every spear of grass there is, wouldn't it be better to designate certain areas where you might have a nucleus of a sheep herd or antelope herd? I doubt the practicability of the use of domestic sheep and mountain sheep. Here's Utah with 84,990 square miles and not one square mile set aside for the use of game. Shouldn't game have its spot all to itself?

BARKER: We might state we agree with you absolutely in so far as mountain and domestic sheep are concerned. They can not use the ranges jointly.

REPAIRING THE DUCK FACTORY

By JOHN C. HUNTINGTON, Vice President, More Game Birds in America, a Foundation

Members of the Association of State Game and Fish Commissioners and guests:

Your President, Elliott Barker, has asked me to present my views on the future of the grand old sport of duck shooting in the United States. I had hoped, and sincerely wish, that I could do so personally and that I could be with my many friends among you to discuss this international problem. However, even though we are 2600 miles apart I want you to know that that represents distance and not sentiment.

Less than six years ago—on October 1, 1930—a small group of eastern sportsmen after a careful survey of the field decided to found a new organization the sole purpose of which would be to work for the restoration of game birds along the same sound lines which have proved so successful in modern business. From the very beginning the Foundation put its staff to work on the problem of duck restoration.

Our first job was to find the facts. This was done by a study of all available data and contacts and correspondence with people well informed on the subject. The next step was actual field work which has been practically continuous since 1932. This field work has taken representatives of the Foundation through the breeding grounds of northwestern United States, where in former years millions of ducks were bred each year and which today constitute a practically negligible factor in the annual continental duck crop.

Representatives of the Foundation have covered practically the entire Canadian duck breeding range in the southern portions of the three prairie provinces, Alberta, Saskatchewan and Manitoba, and during our work on the international wild duck census last summer we observed the ducks as far north as Great Slave Lake in the Northwest Territories.

Four members of our staff have seen more of the great prairie duck breeding grounds in western Canada than any four men living today. I say this simply to illustrate the thoroughness with which the Foundation endeavors to find the facts. It is true that others, including men from the U. S. Bureau of Biological Survey, have observed Canadian duck breeding conditions—some of them for quite a few years—but so far as we know our work in the northern areas last summer constituted the first systematic effort to ascertain the conditions of duck breeding grounds and duck populations in the vast wilderness north of civilization and the further fact that other observers have traveled by boat, canoe, and horseback whereas planes were used exclusively in our work.

The country roughly north of the fifty-third parallel in Alberta, Saskatchewan, and Manitoba and south of Great Slave Lake is for the

most part heavily wooded and extremely well watered. The airplane offers a birdseye view of such vast dimensions that hundreds of square miles can be minutely examined in hours. If our work accomplished nothing else, it proved conclusively that it is entirely possible to locate duck breeding areas from the air and to ascertain the population of large areas with great accuracy.

This country lies north of the end of steel and is inaccessible by any other means except steamer or canoe and, in a relatively few cases, on foot or horseback. It must be obvious that the airplane is the only practical way to investigate these areas, many single units of which would require literally weeks of travel overland and by canoe to visit.

For observation purposes our planes flew at an average height of 300 feet and much of the time flying was done well below 100 feet. In the most productive areas vegetation is extremely sparse and old ducks and their young are clearly visible—easily distinguished at any height below 200 feet without the aid of glasses.

The interesting facts developed by the international wild duck census are these:

The prairie region which includes North and South Dakota, western Minnesota, parts of the three provinces lying between the Rocky Mountains on the west and that great rock formation—the Canadian Shield—on the east, and a small portion of the Northwest Territories lying south of Great Slave Lake, had a duck population of 39,700,000 in August, 1935.

The distribution of these ducks during the breeding season is important. For example, of this total only 2,200,000 ducks were found in North and South Dakota and most of Minnesota. In the southern portions of the three prairie provinces—in what is commonly known as the Canadian wheat belt—the duck population was 5,600,000. In the northern triangle of which the fifty-third parallel is the approximate base and Resolution on Great Slave Lake the apex, the Rockies on the west and the Canadian Shield on the east, forming the sides—an area of roughly 240,000 square miles—the duck population was 31,900,000.

As many of you gentlemen know, there are other important duck breeding grounds on the North American continent, including those in Alaska, the delta of the Mackenzie River, Fraser River Valley in British Columbia, and the black duck breeding grounds of the maritime provinces of Canada, but it is a fact that the bulk of the ducks which annually visit the United States are produced in this great mid-continent breeding ground that we are discussing. While no one can say positively that this has always been true it nevertheless is a safe assumption that this area has always produced the bulk of the continental duck crop.

The ducks which breed in this vast prairie area, together with those which breed still farther north but migrate through the area, spread out fanwise during their fall migration and cover practically the entire United States.

In recent years we have heard many explanations for the decline in the continental supply of ducks—over-shooting, drought, natural enemies, and drainage—are familiar terms whenever the duck decline is discussed. The chief cause of the tremendous decrease of the number

of ducks on the North American continent—the cause which far surpasses in its effect all others combined—is, however, the encroachment of civilization on the ancestral breeding grounds of waterfowl. It should, therefore, be obvious that the only remedy is the restoration on a vast scale of the breeding grounds which have been destroyed and which are vitally necessary before any of us can view the future of our ducks with any degree of confidence or satisfaction.

Two generations ago most of the Dakotas, parts of Minnesota, Montana, and Nebraska and the southern portions of the three Canadian prairie provinces constituted a vast waterfowl nursery which each season produced countless millions of ducks. Today most of this area is devoted to the production of crops. The potholes, the sloughs and the marshes which used to constitute the wild duck factory are gone. In recent years, drought has laid a heavy hand on the pitifully small numbers of ducks which tried to reproduce their kind in the few remaining water areas. Many of these small bodies of water have dried up after the birds hatched but before the ducks were able to fly.

The Bureau of Biological Survey is now restoring large areas of former duck breeding grounds in the United States. Undoubtedly Dr. Gabrielson will tell you of the splendid progress being made in the restoration of water areas for ducks in the northwest. The Foundation takes particular pride in this program because the funds now being used resulted from a memorandum presented by us to President Roosevelt and because the program under which the Survey is now working was formulated by the President's Committee on Wildlife Restoration, of which Mr. Thomas H. Beck, a director and member of the executive committee of More Game Birds, was chairman.

The Foundation loaned four members of its staff, without compensation of any kind, to the federal government for a four months' period and, as a result, many of the projects which are producing ducks today for the first time in years were worked up in detail by members of our staff. Sportsmen in all parts of the country should bend every effort to see that this program of land acquisition and development goes forward without interruption and by that I mean that the necessary funds be made available in the years immediately ahead. After these areas are acquired and developed to their full producing capacities the Biological Survey should receive annual appropriations to provide for their upkeep and management. This is a job in which the Biological Survey should have the wholehearted support of every thinking sportsman who is sincerely interested in the welfare of waterfowl.

Much of the former duck breeding grounds in the United States is, I regret to say, no longer available either because the cost of acquisition is too high or the cost of restoration prohibitive. While the present program of the Biological Survey should be prosecuted to the full extent of its possibilities, I believe that everyone who has studied the subject will agree that maximum development of every possible breeding ground in the United States can never again produce a decent fraction of the demand for ducks on the part of the million duck shooters of the United States. This fact is clearly illustrated by the figures I cited a few moments ago:

2,200,000 ducks in our three best northwestern states in 1935

5,600,000 ducks in the southern portions of the prairie provinces.

31,900,000 ducks in what we term the northern Canadian breeding grounds.

Granted that the production of ducks in the United States can be greatly increased to an eventual total of ten, fifteen or even twenty million ducks per year it is perfectly plain that even if the latter figure is ever reached, which I personally am inclined to doubt, we still must look elsewhere for an annual crop of ducks sufficient to warrant the continuance of duck shooting as a sport in the United States. The logical place to look is to Canada.

The northern Canadian breeding area which is today producing 50 per cent of the entire duck crop of the continent is still a virtual wilderness where droughts are unknown. If it were to remain in its present state, we could depend upon Nature to send south each year approximately the same number of ducks which it has done over the centuries. But there is no guarantee that this happy situation will continue. Already civilization is creeping northward. In our work last summer flying over vast forest areas we frequently saw clearings made by farmers who, for one reason or another, had left the wheat belt and gone farther north. The Canadian government maintains an excellent fire patrol service over much of this area, but destructive fires still do occur and when the timber is gone the water will not long remain. If some natural calamity such as an epidemic disease should occur in this northern portion of the area during the breeding season, the end of ducks and of duck shooting would be a matter of only a comparatively short time.

The southern portion of the Canadian prairie area offers tremendous possibilities for the production of greatly increased annual duck crops at comparatively small expenditure. The present annual production can be trebled, quadrupled or still further increased simply by the restoration and competent management of duck breeding grounds.

After careful study of the entire situation, weighing all the facts, the Foundation has reached the conclusion that the future of duck shooting as a sport in the United States is absolutely dependent upon preservation of the northern breeding grounds and restoration of favorable duck breeding conditions in the southern portions of the prairie provinces.

It is true that a so-called "wet" cycle would result in an increase in the Canadian duck crop but such results would be meagre and temporary for the simple reason that man has so thoroughly destroyed the former breeding grounds of ducks that Nature unaided is no longer capable of mending the damage.

Figures recently assembled by the Foundation indicate that sportsmen have invested well over one hundred million dollars in club and private duck shooting properties in the United States. This represents the cost of land and buildings alone and does not take into account the equipment which every duck shooting property must have. Are the duck shooters of the United States going to sit by and see this investment fade away when at comparatively small cost they can assure its permanence and, what is even more important, in my opinion, continuance and steady improvement of the grand old sport of duck shooting?

Will Canada cooperate in rebuilding the duck factory which is now virtually in ruins? Emphatically yes! Prominent government officials, businessmen, fish and game associations and natural history societies interviewed during the past month have enthusiastically endorsed this program and promised complete cooperation. Canada does not have the money to do the work herself and there is no good reason why she should pay the bill for improving duck shooting in the United States. We are the beneficiaries of the duck crops produced in Canada and yet Canada is perfectly willing to meet us half way if the duck shooters of the United States will subscribe the necessary money which represents less than one-half of one per cent of that invested in duck shooting properties of this country.

A detailed program to end the duck depression will shortly be put before the sportsmen of the United States and, unless I am very much mistaken, the necessary funds will be promptly subscribed. Dividends in the form of increased duck crops will shortly thereafter be payable to the duck shooters of every state in the Union.

Longer open seasons, larger bag limits and the repeal of petty unenforceable shooting regulations with which the sport of wildfowling in the United States is now afflicted will be possible.

When this program is announced I trust it will receive the active interest and financial support of everyone who is sincerely interested in the future of duck shooting.

A PROGRAM OF WILDLIFE RESTORATION AND REGULATION ON INDIAN RESERVATIONS

By ROY NASH, Superintendent, Sacramento Indian Agency,
U. S. Department of Interior

Mr. Chairman and members of the Western Association of State Game and Fish Commissioners: I am keenly aware of the disappointment this assembly must feel in the circumstance that wildlife regulation on Indian reservations is not to be discussed today either by the Hon. John Collier, U. S. Commissioner of Indian Affairs, or by Mr. Robert Marshall, his Director of Forestry. Your chairman requested an official and authoritative statement of the Indian Bureau's "plans both for restoring wildlife habitat and wildlife itself and the regulation of hunting by Indians on these Indian lands." Commissioner Collier is down in Old Mexico and Mr. Marshall, when last heard from, was in the tall timber of Oregon. When both the Commissioner of Indian Affairs and the Chief Forester found it necessary to decline your cordial invitation, your president requested an authoritative statement of policy which might be read by me for the Commissioner; in this he likewise was doomed to disappointment.

I am going to be very frank with you. I have a suspicion that the reason for your disappointment in both the above respects is the same: the Indian Service has no definite plan for restoring wildlife or for the regulation of hunting by Indians on Indian reservations. It is high time that the federal government should have such plans. This afternoon I will attempt to formulate the problem.

Throughout the West today there is effective, on the whole, a pretty sound and intelligent public opinion in the matter of game conservation. National parks, wilderness areas, and breeding grounds have been set aside, within the boundaries of which no destruction of game is permitted unless the area becomes overstocked. All states have laws specifying definite periods within which hunting and fishing of most species are permitted. The game hog and the man who killed elk merely for the teeth are no longer respected members of any western community. The idea of game management, as expounded by my old colleague of forestry days at Yale, Aldo Leopold, gradually is taking hold. The man interested in conservation of wildlife travels the West with a feeling that all is well, or at least getting better—until he enters an Indian reservation. Then his optimism suffers a rude shock.

To make it concrete, suppose he comes from the south entrance of Yellowstone Park and takes the road toward Lander, Wyoming. South of the park he is certain to see deer, many elk, possibly a moose; in the Tetons, mountain sheep. But when he enters that magnificent expanse of territory called the Wind River Indian Reservation, he enters a region almost devoid of large game animals. This domain of the Shoshones and Arapahos includes wide expanses of plain and grassland, of mountain and forest dotted with alpine lakes, the whole watered by many fine trout streams. Originally it was the habitat of the buffalo, elk, bighorn sheep, antelope, mule deer, moose, mountain lion, wolves, coyotes, and bear; of sage hen, prairie chickens, and migratory waterfowl; of rabbits and all the lesser life characteristic of the Rocky Mountains. Today the Wind River Reservation is almost devoid of big game. The mountain streams still are full of fish, but the higher elevations, except for domestic sheep, are comparatively lifeless. The occasional deer or elk which drifts in from the surrounding areas where game still is abundant, is shot down on arrival regardless of season, sex, condition, or the ability of the hunter to utilize his kill. I heard of an Indian there who recently cornered and killed four does and three fawns in July, in a place where he could not possibly utilize the meat, at a time of the year when packing it out was equally out of the question. That kill was for the joy of the kill, sheer wantonness. These same Shoshone and Arapaho Indians, having denuded their own reservation of large game, have the privilege of taking out a state license and going north a few miles where game has been protected; there they may kill their elk and deer as do the white hunters.

Sportsmen generally, and you in particular upon whom devolves the duty of enforcing laws designed to conserve a proper balance among the wild population, feel that this is an intolerable situation which cries to heaven. Indians are American citizens: why, you ask, should not the duties of citizenship go with the right? The situation is intolerable. Like a lot of other situations, it is not to be understood except in historical perspective. If we would do something effective to remedy it, we first must understand clearly how the present intolerable situation arose.

I do not believe I am maligning primitive folk when I suggest that a basic primitive trait is joy in the kill. The statement frequently is made that the Indian, in the days before the coming of the white man, did not slaughter more than he needed for food. I have observed

primitive people in the Philippines, in Brazil and in Alaska. I think a truer statement is that then, as now, primitive man probably slaughtered all he could. That he made no serious inroads in the wealth of game inhabiting North America was due to the smallness of the Indian population and to the ineffectiveness of his weapons. Three summers ago I was on Nunivak Island in Bering Sea, where the Eskimos still kill ducks and geese on the wing with a beautiful tri-pointed spear thrown by hand. Migratory waterfowl are in no danger of extinction from Eskimo spear throwers, any more than the buffalo were in danger of extinction by men on foot armed with the bow and arrow.

To primitives whose life depended upon the kill and whose chief delight was in the kill, the white man brought the horse and the repeating rifle. An Indian astride a horse with a Winchester in his hand was a potent ally of the white men who began to melt down the buffalo herds ahead of the advancing fringe of the frontier.

But also, under provocation, the Indian astride the white man's horse and armed with the white man's rifle, was a menace to the white man engaged in the process of appropriating his land or crossing the Indian's hunting grounds. Two alternatives were open: the advancing frontiersmen either could mingle with the Indian population and absorb what they did not kill; or they could shove him aside, out of the way of the line of march, and segregate the Indian on a reservation. The latter policy prevailed, to the ultimate sorrow of all concerned, I am afraid.

In this matter of game management, we today are paying for the concepts of the early nineteenth century. The Indian's title to the land always was recognized as a valid title which had to be extinguished by legal process. The Indian tribe was regarded and treated as a sovereign political entity. The process was the negotiation of a treaty between the United States and the Indian tribe, whereby, generally, the tribe relinquished its title to a broad, indefinite area in exchange for a reservation definitely bounded and usually of sufficiently princely dimensions, if not always very good land.

In these early treaties with the Indians it seemed but the merest gesture of common decency to specify that within the Indian reservation thus set aside, the Indian could hunt, trap and fish at any time of the year without restriction. Throughout the whole of the Great Plains as far north as the Arctic, bison and caribou were the Indian's staple foods; on the Pacific coast from San Francisco to Alaska, salmon was the staff of life; and in the eastern corn area as well as in the case of comparatively intensive agriculture in the southwest, much dependence for necessary food was placed upon the hunt. No one, white or Indian, could foresee the day when game might grow scarce; American resources seemed inexhaustible. It was an act of generosity which cost the giver nothing. So freedom to hunt and fish without restriction at all times of the year on Indian reservations became the law of the land embodied in federal treaties which the United States is still bound to respect.

Where primitive life and so-called civilization impinge, no social force is greater than the example of the dominant group. Written law meant little to the Indian; the example of the white man he saw invad-

ing his old hunting grounds meant a great deal. What did the Indian see?

The Indian saw white hunters slaughter buffalo by the tens of thousands, strip off the hides, and leave the carcasses rotting on the plain. At a later day, the Indian saw white hunters slaughter herds of elk and take nothing but a couple of teeth to rattle around on the rotund abdomens of a fraternal organization. The Indian saw the man who was setting the pace develop the cannon gun of the duck poacher, the automatic shotgun. The Eskimo, who at the hazard of his life, went to sea in a kayak and threw a spear into an occasional whale, saw the development of a ship with a fleet of gasoline motor-boats swinging from the davits, each mounting a gun throwing a bomb effective at long range, a floating factory capable of bringing in 48,000 barrels of oil in a single season.

The example of the white man throughout the whole nineteenth century and well into the twentieth was the example of unrestricted slaughter of game and fish. Every circumstance in the Indian's life, his descent from primitive hunters, his poverty, his love of the chase, impelled him to follow that example with vengeance and a zest. So in your criticism of the Indian's continuing destructiveness, please do not forget how recent has been the white man's conversion to a philosophy of game conservation and management.

In attacking the question of policy for game management in the Indian country, the Indian Service necessarily must differentiate between those Indian groups who still depend on fish and game for a large part of their living, and those to whom game has ceased to be of economic importance. In the first group are the Eskimos and Alaska Indians, the Seminoles of the Florida Everglades, the trappers in the delta of the Mississippi, and those Indians on the Pacific Coast who still largely depend on the salmon catch. On the great majority of reservations in the eleven western states covered by this conference, game has ceased to be of much economic importance.

You game commissioners of these western states can see clearly how the Indian has cut the ground from under his own feet in destroying what formerly was a great economic asset. On a reservation like Wind River, the mountains could be fully stocked with game without interfering with the sheep and cattle industry, and that game would go a long way toward supplying the Shoshone's larder with elk steaks and venison through the long winter. The problem is how to make the Indians see that their own interest lies in the direction of restocking, game management, and a reasonable balance between production and consumption once the reservations have been restocked. It is primarily a big game problem; fish and fowl have not suffered at the Indian's hands to any comparable extent.

The first suggestion which naturally would occur to a group whose duty includes enforcement of state laws aimed at a rational use of our wild resources, is to make the state game laws apply to those reservations within the state.

As a matter of law, that can not be done without the sanction of Congress. There will come a day when the Indian problem will be officially liquidated, treaties terminated, and Indian citizenship divested of all special rights and privileges. It will come at different

times in different states. In California, for instance, that day is fast approaching; in New Mexico and Arizona it will be long deferred. But until the United States lets go of its guardianship of the Indian, it is doubtful if the Congress will listen sympathetically to mandatory extension of state game laws to Indian reservations. This hunting and fishing privilege is one of the rights of which the Indian is most jealous; it is the point at which most sympathy can be brewed in women's clubs and sewing circles.

Is the situation, then, hopeless?

As Mr. Marshall pointed out in a recent discussion of this problem, there are two fundamental items in Commissioner Collier's policy which work in the direction we all want to go. The first is recognition of the primary importance of economic independence for an Indian standing squarely on his own feet. Concretely, the present administration has ended the allotment system, has stopped the loss of Indian lands, and begun consolidating his remaining land holdings in workable economic units; the present administration for the first time has provided loanable capital so that the Indian can develop his resources to the full; and the whole philosophy of spoon-feeding able-bodied men has been discarded as an insult to the Indian. If we succeed in making the Indian into a reasonably prosperous cattleman, lumberman, or farmer—and this is the definite goal—one great impulse leading to destruction of game, stark hunger, will disappear.

A second item of fundamental policy of the present administration is progressive self-government for Indians organized under the Indian Reorganization Act. The history of Indian administration during a hundred and fifty years has been such that the natural reaction of any spirited Indian toward any prohibition handed out by the group which reduced him to the position of a reservation Indian was to nullify and break that prohibition. Those of us who are close enough to the Indian of today to know what he is thinking are keenly aware of an intelligence which easily can be led where it never could be driven.

Robert Yellowtail, a Crow Indian, has been appointed superintendent of the Crows in Montana by Commissioner Collier. The Indians under his leadership voluntarily have declared a three-year ban on hunting of all kinds on their reservation; and some 214 buffalo and 270 elk from the surplus of the Yellowstone herds have been put on the reservation to begin restocking with these two species.

Here is the fertile lead for us to follow as practical administrators. Not, at first, compulsory enforcement of state game laws; but education, systematic and continuous, aimed at persuading the organized Indians to impose restrictions in their own interest.

In his absence, I am ready freely to confess for the Commissioner of Indian Affairs that the Indian Service has not made the slightest beginning at a systematic attack on this vital problem. The way to begin, in my opinion, is to create a new position in the Indian Service to be filled by a trained specialist in game management. His first job would be ceaseless education of the Indian, by personal contact, by speech and by written word, to the end that the Indian be persuaded to see that his interest lies in game conservation. His second job would be to act as liaison officer contacting all the forces of state

enforcement, sportsmen's clubs, conservationists, bringing them all into his organized campaign of education. When a stranger from Washington tells a western Indian something, the Indian naturally reacts against it; too often in the past he has been fooled, swindled, and cheated by men posing as his friends. But when Tom Jones, the local hardware merchant, and Dick Harper, the druggist whom he sees every time he goes to town, drive out to the reservation and have a talk with the Indians about restocking the reservation with game, the Indian listens and is inclined to learn.

In conclusion, I see no likelihood as a practical political measure, of persuading Congress to extend state game laws to Indian reservations in these eleven western states, say within the next ten years, except in California. I see great possibilities in an organized educational campaign directed by a specialist trained in game management, looking toward voluntary restriction and regulation of hunting and fishing. Given any measure of success in the creation of a sentiment among Indians for conservation of their own game resources, there will be no difficulty in securing from Congress the funds necessary to insure restoration and restocking. The money involved would be small.

If you gentlemen concur in this suggestion that the way to begin is to appoint a trained man to head up a new fish and game division in the Indian Service, probably as a branch of the Indian Forest Service, may I suggest that a recommendation to that effect addressed to the Secretary of the Interior by the Western Association of Fish and Game Commissioners would have more likelihood of favorable consideration than an appeal from any other group in America?

Discussion Led by S. L. Lewis, Arizona

BARKER: I am sure we appreciate this very instructive and enlightening paper Mr. Nash read. It's one of the best I ever heard at our conferences and I want to say also it is the frankest statement of facts I ever heard come from a federal official. We should be able to work out a program of some sort.

LEWIS: When I looked into this thing I found out that the state game departments did not have any authority on Indian reservations. Mr. Nash has cut my discussion short as he has admitted everything I intended to accuse him of.

Down in Arizona and in several other western states, but in Arizona particularly, we have between 19 and 20 million acres of ground in Indian reservations. I am glad to say on some of these reservations we still have a reasonable supply of big game. One is the Apache Reservation located in the central part of the state. There are some places in Arizona where if regulations were put into effect and carried out in some manner, and I think that they can be accomplished and work in cooperation with the Indian Service and the various superintendents of those reservations, a lot of big game administration can be taken care of. Game can be restored where there is enough stock on those reservations for propagating purposes. If we go on another 10 years, or possibly longer, as Mr. Nash says, before any definite action is taken there probably will not be any big game animals left to speak of. We hear a lot of criticism in Arizona in

reference to the hunting and fishing on Indian reservations. Some charges are possibly true and some may not be, but here are some of the things that come up among sportsmen occasionally and this seems to be that possibly some white employee on an Indian reservation invites his friends in from time to time to hunt on that reservation, obtains special permits, possibly from the superintendent of the reservation, and thus it is causing a lot of dissatisfaction in Arizona. There has not been a good feeling among the sportsmen towards some of the Indian superintendents of the various reservations because there is no question there but that they have absolute power as far as any hunting or fishing regulations are concerned on those various reservations.

On the Apache Reservation there are some of our best trout streams. For a number of years, for a period of at least 10 years, those streams have been stocked with fish by the state game department. Some of the sportsmen think this is unfair. A fee of \$3 is charged by Indians for a season permit to fish on the Apache Reservation added to the state game license of \$1.75. The annual reservation permit is \$1.25 more for a season than our state game license, and we supply all the fish. That sounds more unreasonable than it actually is. The superintendent I think goes further towards game consideration and game management, that is with reference to the law enforcement, than any reservation in the State of Arizona. Out of that fee he keeps men in the field during the fishing season and patrols there and the sportsmen who buy the permit and go there to fish are very well regulated and must live up to the state law with reference to season and bag limit. The Indian, what they do out of season and with reference to our state game laws, of course, we do not know because we go on that reservation only at the invitation of Mr. Donner.

A bill, passed some two years ago of which I have a copy here for comment, is known as the Coordination Bill and it merely states that the various federal departments should work with the Indian Service in the development of some plan of game conservation and propagation on the various Indian reservations. The information I can get from Mr. Nash is that, and he answered it very plainly, there has been nothing accomplished or very little effort has been made to accomplish anything towards regulating the Indians on the reservations. To be frank with you here, I don't know unless this group of men interested in game conservation would follow along Mr. Nash's suggested outline that we pass a resolution requesting the Indian Service to try and work out some plan towards regulation of wildlife on all Indian reservations out here in our western states.

I was going to discuss here some of the things that Mr. Nash answered, but as frank as he has been I don't know of anything that we could accuse him of that has not happened on the Indian reservation besides what he has admitted.

NASH: The Indian enjoys special privileges on his reservation, but it was not contemplated that the Indian Service shall ever extend special privileges on the reservation to others. If that is brought to the attention of Commissioner Collier he will act, and if there is any state law by which the commission can prosecute then you can do so. In reference to stocking reservations by local groups and then the Indian charging a fee for fishing and hunting on his reservation, the

Indian undoubtedly has a right to utilize his reservation any way he can and to make all the money he can out of it. We are up against the same problem on the Tule River, stocked by the sportsmen's clubs. The Indians did not charge any fee there and then came a time when they wanted to make some money and gave them two years' warning. After two years we are going to charge \$1 a day and they stocked the streams. Now the federal government is responsible for stocking the streams and letting the Indian charge.

MACAULEY: The land on the Indian reservations is considered as within the state in which they belong and the state laws on the reservation would apply to whites as well as when off it.

NASH: Yes.

MACAULEY: Then Mr. Lewis could enforce the law on the reservation as well as off. In regard to reservations in Washington, we have several, most of the lands belong to the whites.

AIKEN: Would the state law be enforced on the Indian reservation regarding violations? In other words, the Indian can take fish by any means he sees fit at any time of the year but he can not go off and sell them out of season.

LEWIS: What right would a patrol deputy have in any state on a closed Indian reservation? What authority would he have over a white man employed by the Indian Service shooting game out of season on that reservation?

NASH: I am not a lawyer, but my opinion is he would have full rights to go in and arrest him. Washington has done it and is doing it regularly. Last week we arrested some and they paid fines.

PROGRESS OF THE GENERAL WILDLIFE FEDERATION

By JAY N. DARLING, Acting President, Wildlife Federation

President Barker, I didn't come here to make a speech, I came for the ride. Barker, I was surprised at the extreme mystified expression on your face when you saw me. You said those Washington fellows lied so much, I did not believe you would come, you in particular. You can't believe anything those Washington fellows tell. Well, when I left the Biological Survey I resigned all my responsibilities to that little fellow, Ira Gabrielson, and I want to speak as just one of the American citizens with no strings on me whatsoever, and I want to speak on the general topics which interest us and some of the past experiences which bear on our future conduct.

Perhaps the best way to illustrate and make you understand the origin of the federation idea is to go through the experience which I went through in my first year or two with the Biological Survey. I arrived early in 1934 in Washington. With all the millions of dollars and the millions of men which had been offered to the public to put to work for the benefit of everything—conservation got none. In the first year even, the C. C. C. camps probably cut away more environ-

ment suitable for wildlife, caused more erosion or induced more erosion by their activities than they could repair in the next five years.

As we sought to get money from the emergency funds, we found that organized background got money without much effort. Wildlife got none. Projects proposing to cooperate with the states in restoration of upland game and migratory waterfowl received sympathy but no funds. Mosquitoes, malaria control in states where they had no malaria and no mosquitoes to bite, in some regions got \$116,000,000. Conservationists got none.

I am not reflecting on anyone excepting the conservationists. They had no plan; they had no organization; they had no power to back up a request for any project. In spite of the fact that there were between seven and eight million people paying license fees in this country for the privilege of hunting and fishing there was no one to back up a request for any wildlife project. Rather startling!

Little Joe Huntington of More Game Birds Foundation was the one person who woke up to the fact we were entitled to something. He went down with a proposal we make a national survey and set up a national program. Out of that grew the Beck Committee who worked harder than anyone I know. It was an excellent program. It took up all of the upland interests in migratory waterfowl for permanent refuges. It was a good program, not detailed, but it had the essence of something we never had in this country. It never got one thin dime to carry it out. Why? Because little groups who had a project to drain a county in northern Michigan to grow more onions and mint, when already the market was bogged down by mint and onions, put in great steam shovels and drained the area in spite of our protest. That is not from the desire of any president, governor or senator to do that. It is because men in a democracy listen to the people who are vocal and produce votes.

The final disillusionment of people who should be interested in it was in an effort to get a certain sum of money for wildlife from the munition makers. All the munition makers agreed to it. I put it to the President. He thought it was a great idea and said that he would have to ask the Treasurer of the United States about this—what effect it would have on finances. I wish you could have seen the memorandum I got back. It said wildlife conservation must receive its funds through Congress and until the public speaks through Congress, this is not to be considered. That was a definite instruction so far as official action was concerned—that it must come from the voice of the people.

I have related only a few of the steps. We could get nothing. A little starved bureau, without funds, and with all the money being allocated, we could get nothing. If it hadn't been for the much abused Rex Tugwell, the money would never have been allotted, we had to suck it out of someone's fund.

I have been a state commissioner. The same thing is true in a state. If anybody wants to build a factory and dump waste into the best trout stream of the state, try to stop it. There are between seven and eight million people who have gone on record in this country, by buying licenses, that they would like to hunt and fish. That is enough to control a presidential election.

There are 7000 groups and organizations among whose first and primary efforts is conservation in their by-laws and their constitution,

and no two of these organizations speak to each other. I don't need to tell you, the state commissioners, that you are having the same trouble I had and that Mr. Gabrielson had and we all will have forever unless we do as other interested groups do—center into some coordinated program. I don't care what kind of a federation you have in your state. I have no desire to dictate to you, but I am telling you what you have to cure.

You don't need to charge people very much to make them talk to each other. I can't see why the turmoil within states still exists on a simple proposition as getting support in back of your own program. It makes me think of the old story of the late King George when he had an attack of the flu and got very low and needed a blood transfusion. They brought in a big, red-headed Irishman whose blood count fitted the king's. They shot the blood of the Irishman into the king and after lying a few minutes, he raised himself and opened his eyes and said, "To hell with the king." I sometimes think that is what is the matter with the conservation groups. We all really belong in some sort of an organization where we may bring pressure to bear.

I don't know how it is in your states, but in mine it takes three or four fellows to go up to the state legislature to lobby for anything we wish. Nine times out of ten, we are licked. We took a census in the State of Iowa a little while ago on what people wanted to do most. Number 2 was fishing. Number 11 was playing golf.

We are just not good business men, if we let things continue as they are. With that need in mind, we called a conference in Washington. We invited everybody—sportsmen, women's clubs, farmers, 4-H clubs, Indian Park Service and all. They came 2000 strong and feeling the necessity of this thing, they voted unanimously for it and went home to form federations within their states and out of the state federations we hoped we might form a national federation which might accomplish what we want. I was interested to see what happened after the enthusiasm sort of died down. I watched it carefully, knowing that if you can not generate some motivation in your home communities, you can not have it nationally. It has been mighty slow brewing. You know the old story of the geese cackling out on the wall that saved the town. It wasn't really the geese cackling on the wall which saved Rome, but the fact that the geese woke up the Roman legions who saved the town. If they had turned over and gone to sleep when they heard the geese cackling, Rome wouldn't have been saved. Wildlife won't be saved if you stop with your meetings. Organization by you back home has to be carried out. I would say the number of states which are really active is probably 14. We have 24 which claim to be active, but upon investigation we find they are poorly organized and won't work.

We have 14 and Mr. Grebe of Idaho has done the best job of anybody in the United States. He ought to have a medal. I know California is in some distress over the conflicting agencies—whether this group or that group is going to run it, and what is going to be their policy. The main object of the federation is not to have arguments between groups, but to accomplish the main factors and have adequate financing, under state management for the formation of a wildlife program. There is no policy in the national government

the same as in the Indian Service. There is no policy for wildlife restoration and never has been. We have made plans, but nobody ever adopted them. There should be, and if you pardon me for taking your time, this problem of state and federal responsibilities isn't such a difficult thing.

The federal government should be bound to see that no species becomes extinct. No one else can do it. I believe that the federal government has a definite responsibility to see that no species is exhausted completely. That is number 1. Out of all this land, which is under the jurisdiction of the American government, certainly there is enough to provide a home for each one of the major species, and enough to keep them alive. That is number 1 of the federal responsibility.

Migratory waterfowl is number 2. It is in the same category. The states couldn't do it. The federal government must do it. When you get beyond that you have the state's responsibility which is for all upland game.

Barker used to row with me about the Taylor Grazing Act, although we had nothing to row about. We insisted on something being preserved for game. Barker has done it in New Mexico. He went in and grabbed it before it all went.

The states have a responsibility for upland game and between the two, the federal and the state, we have a joint responsibility which is greater than all the rest of them. Some such program as the following should be developed: The federal government shall establish a fund similar, if you like, to the national highway fund, which shall be contributed to the states in cooperation with state activity. You remember the old days when we built roads by county supervisors and township trustees. They built a road this year with taxes and the next year they had to rebuild it. Culverts were made of wood and there was no permanent road system until the federal government set up a cooperative fund and said that we must have some sense in this. Out of that has grown our federal highway program. The federal government takes its share and the state government its share. It is done under an engineering plan. No attempt is made to dictate. The same thing could be done for wildlife. I am satisfied that no congressman would turn down a bill to provide for cooperation between the government and his state. Maybe I am wrong. I know if you had an organization and would write to your congressman, you would probably get it. That is the genesis and analysis of the Federation.

I have been very careful not to go into any state to say that the Federation is no good just because I used to be in Washington, and Barker and some others are suspicious that I am trying to dictate. You have to do it yourself and at home.

In November, after election, I hope to call, as acting president of a tentative federation, a national meeting of the states which have organized and have them form a permanent organization so that when the next session of Congress meets we will have a mailing list. At least we can tell where to start. We will be a little volunteer fire department if you wish to call it that, and will come to the rescue of national and state crises.

Among the early things which came to my attention in the bureau, I had a great many excellent technicians in the Biological Survey who

are eating out their hearts to do something and as far as they could they did and would write up their findings, but would get no place. We all need them.

I conceived the idea that the state agriculture departments might use them, and the state fish and game commissions might combine on the use of a technician. We prepared a bill for Congress and put it in a general agriculture bill that we be allowed to pay \$6,000 for a technician in California, say, or in any other state.

The Secretary of Agriculture said it was fine. The budget director cut it out. We had to sell it to the budget director and we explained the whole situation to him and he said he would put it back in. At Congress, they cut it out as something new. We had to go to work on each individual down there, through the names of congressmen who might be on the committee who had that bill in charge—all to no effect. During the general hearing, a door opened and in walked a man whom I had never seen before and asked for cooperation between the Federal Biological Survey and the states on game management. They explained that they had cut it out of the bill. He said that Alabama would like to have that section in. They said, "Oh, all right," and rubbed out their blue pencil delete marks.

I later discovered that it was Congressman Oliver, who knows very little about wildlife, although he is interested, and I asked him how he happened to do that. He went back to his desk and showed me a letter which apparently required some effort to write from someone interested, and he said in the most simple language that Alabama needed somebody who knew something about game. One letter to the congressman got action. If one fellow can get something done, how about trying to enlist some share of the seven or eight million people who are paying for licenses, and some share of the women's clubs and garden clubs, and the landowners more interested in conservation?

I started out altogether on game and wildlife conservation. I have now become a convert that this is not just wildlife, it is bread and butter to all future generations. When I read that eight and nine hundred million acres of tillable land on this continent are now retired out of use and 26,000,000 annually approach the unproductive state, and our population is increasing gradually, I can not contemplate more abundant living when the ice box and the pantry have less and less in them. No matter whether you have dictatorship, or what you have, if you can not have the natural resources producing for you, you are poverty stricken and you will starve.

Look at your water systems from the Atlantic to the Pacific. I can remember when there was an Atlantic run of salmon; now they are gone and most of the shad are gone and your sturgeon run up the Hudson River is gone. The Mississippi River is inert as a glass of water with nothing in it. Sturgeon are gone out of it. The game fish which used to spawn in those long stretches of limestone and rapids which feed the country where the Mississippi permeated, are all gone. The herring run is gone. The upland lakes from Montana to the Finger Lakes of New York are dying from lack of care and attention. Come over on your Pacific Coast and see where the salmon are going—where are your commercial fishers taking their catch? Down below

the Mexican borders, and why? —because you have exhausted your own.

I am not talking about the man who wants to cast and will go looking for a good stream; I am talking about something more fundamental. When they talk about the ecology of waters and what produces the fish, very few know about it.

I came here for a nice visit. I enlisted for the duration of the war, but I don't want anyone to fight me, but I want to fight with you fellows for the same thing you want. I think I know most of your problems.

Discussion

COOK: How many of us are federated?

DARLING: I can't tell who are here. Idaho, Nevada, Wyoming and Montana. Oregon has a federation. California has no federation. It claims to have, but it has none. I don't know whom to turn to. I don't want to tell anybody they have to federate with the other states. Cook said a while ago they tried to federate but the cattlemen took it away from them. I know how it is—in one state the women's club stole the sportsmen's show. I don't care if I only have somebody to write to who can write to their congressmen—some contact with you folks. Somebody to come to when the fire bell rings. I hope you will contact your state junior chamber of commerce, I don't care what kind of a federation it is.

COOK: We have a sportsmen's federation in Utah so strong in our State Legislature that it has knocked the ears of everybody down until we tried to start a cooperative plan.

PENDING AND PROSPECTIVE WILDLIFE LEGISLATION

By CARL D. SHOEMAKER, Secretary, Senate Wildlife Committee

There is one thing, a misstatement that Mr. Darling made, and I always like to check him because he is checking on what I say. He said that the water in the Mississippi, if you held it up in a glass, would have nothing in it. He has forgotten, because there is nothing but mud, filth and pollution in it. It's filled with it and that's the reason you have no fish there.

It's always a good thing to follow a dynamic speaker like Mr. Darling. I am going to briefly outline some of the things that happened in the last year and some of the things that are going to be proposed in the coming session of Congress.

The last session of Congress was not productive of a great deal of wildlife legislation. Three items stand out possibly in some prominence. One is the ratification of the treaty with Mexico, similar to the waterfowl treaty with Canada. Second is the sock-eye treaty negotiated and ratified with Canada so far as sock-eye salmon are concerned in Puget Sound and the Fraser River. Nothing has been done with that and won't be until they get a commission appointed in both countries to handle the situation. The third was made by the Biological Survey

and other organizations in increasing the appropriation of the Biological Survey. It was a pretty tough proposition to get more money out of Congress for direct appropriation. It's easy enough to get large millions and billions for this and that, but to take \$100,000 for this or \$40,000 for Alaska is difficult. After a long struggle, having been kicked out in the House, the Senate was able to make a number of appropriations to increase the Biological Survey appropriation this last year by about \$175,000 more than received before, which, of course, will go into the budget next year and remain there and from that we will again try to get some increases. There were some other things which I need not go into.

Before I talk about what may happen in the future, I want to go back to the grazing act and the Indian situation. The great difficulty as I see it is that Congress passes a bill, it has certain ideas in its mind when it passes that legislation, and then when the bureau or agency which administers that law puts it into effect and comes to working it out, it has an entirely different conception of the situation. That is true of the Taylor Grazing Act. I attended the hearings of the Taylor Grazing Bill. I know what was in the mind of the people who appeared there before that committee. I know what was in the minds of some of the members of the committee itself when the bill was reported out. Certainly wildlife was to be recognized. Certainly it was to have its day in court. The administration has not been as sympathetically inclined with the wildlife as it was intended by Congress when it passed that bill. That's the only comment I will make on that bill.

On the Indian Service, the coordination bill was passed in 1934. There was a definite mandate on the part of Congress to the Indian Service, the Bureau of Fisheries, and Biological Survey to work out a plan with reference to wildlife so far as the Indian Service was concerned. Nothing has been done, as Mr. Nash said.

There were a number of bills in Congress last session which had to do with wildlife which did not pass or died with the session.

Number 1 would probably be the bill introduced by Senator Lewis, similar to the one to change the name of Arkansas to Ark-an-saw. I see you have heard that story. This was to change the name of the Department of the Interior to the Department of Conservation. After a long and bitter struggle, lasting over two sessions of Congress, the bill finally passed the Senate, and died in the House.

On the other side of the capitol was the Kleberg bill in the House which proposed to consolidate certain conservation activities. It didn't get very far. It became known, I think, around the halls of Congress that the Kleberg bill was nothing more or less than a stop proposition for the Lewis bill in the Senate and therefore it didn't get very far.

Another bill which was introduced and over which there has been some bitter fighting was the antipollution bill. There was a bitter struggle to see who would obtain the dominance. Nothing was done. Yet this pollution problem is probably in the category of one, two and three so far as wildlife is concerned. Next session of Congress another effort will be made. I don't believe any of the bills will be reintroduced as written then, for the simple reason many angles have developed which will of necessity have to be ironed out. The smallest angle in the

whole thing is the fear on the part of the state health departments that they will be frozen out in the solution of this problem.

Those are the important conservation matters which died with Congress.

What is in prospect? I am going to leave the most important to the last. What is working now in the matter of consolidation or better coordination of federal wildlife agencies? There is a great deal of thought being expended at the present time. Last session, Senator Byrd introduced a resolution to examine into the bureaus of the government to see if it was possible to consolidate some of the numerous agencies we have; to see whether or not some of this waste could be done away with. Senator Byrd is an enthusiastic believer in wildlife restoration. He is a member of the senate committee on wildlife and a student of governmental affairs. He has assured me that he expects to devote a considerable portion of the hearings of his committee to a study of the problem involved in coordination of governmental wildlife activities.

You know what we have. We have them scattered all over the government. We have the Bureau of Biological Survey and Forest Service in the Department of Agriculture; Bureau of Fisheries in Commerce; Park Service, Reclamation and Grazing in Interior. No one knows now, and no one yet has a plan which will properly consolidate all of these agencies. It seems as though an actual consolidation of all of them is impossible.

There has been some thought that possibly a new federal department should be created with a Secretary of Conservation. This does not seem to answer. It may be that some plan for real coordination of these federal wildlife activities will be developed. In any event I think some progress will be made at the next session of Congress on this very important and vital problem.

I already mentioned the pollution proposition which is again going to pop up. Involved in this are many other problems. Flood control, erosion, reforestation and a number of others all enter into this particular problem. Those are some of the angles which will have to be ironed out before any suitable bill will get a real hearing and get through Congress.

Another matter and the last one, I want to talk about is the one Mr. Darling mentioned and that is a federal aid program for wildlife restoration in the states. Mr. Darling did not know I was going to talk about this matter. As a matter of fact the chairman switched the deck on me, I was supposed to talk about the federation and I did not know I was to talk about legislation. I came carefully prepared to talk about the federation; had a speech all written out and committed to memory. Mr. Darling got hold of it and he gave the speech I was supposed to give today, and a cold deck was given me this morning on legislation, so you will pardon me if I repeat a portion of what Mr. Darling had to say about the federal aid program.

I think it is one of the things behind which the General Wildlife Federation can get with a certainty and that some action will be taken by Congress. It is not impossible to get a program of that kind with one session of Congress. It may take two sessions or two years before such a program can go across, but it is worth while.

I sent out some time ago to every state game commissioner, a feeler. I wanted to find out how the state game commissions would react to such a proposal. Remarkable as it may seem, from the source I expected to get the most opposition, I received the greatest strength and that is right out here in the eleven western states. My good friend Newell Cook surprised me above all things when he wrote to me and said he was wholeheartedly behind such a program, and I take my hat off to you for those kind words, Mr. Cook.

Barker said it was a thing we ought to discuss and I hope you will bring it up at the Western Association meeting. So on down the line the states generally, some feeling their way a little bit, not knowing what was in contemplation, but all realizing that money was the necessary, essential thing to bring about more quickly a wildlife restoration program, realizing it wasn't within their own power to put across, and they thought the plan had great possibilities. I turned over the correspondence to Mr. Darling.

Surely on this plan where we propose a federal aid to a wildlife restoration program with the states along the lines that have developed our great highway system. (And by the way I want to digress for one moment, I think Mr. Burns misinterpreted my letter in which he thought we planned to increase the gasoline tax in order to take care of this federal aid program. That was used as an example.) It will be easy to put over a program of this kind with a wildlife federation backing it; with the state fish and game commissions backing it; the general federation getting women's clubs, farmers' organizations, civic organizations, rod and gun clubs poking at their congressmen and senators, not when they are back in Washington. Don't make the mistake of waiting until your congressman gets back to Washington; this is the mistake they make by waiting. Take your congressman out fishing and tell him the story. Go and see him right here. Put your program over when he is back home in close contact with you. There is no question about that. Aiken, you are agreeing with me.

AIKEN: Especially election year.

SHOEMAKER: The details of this program will have to be worked out along the lines of a bill which will pass Congress. It will be modeled in some respects after the federal road bill, which is a good bill, and made it possible to ruin most of the wildlife in the country, but nevertheless no one would want to go back to the old highways, so there will be no invasion of states' rights or control over its wildlife, but there certainly will have to be some adherence to a standard of wildlife restoration and care and management, and I think anybody who is fair will agree that will have to be done.

Now, how can this federation Mr. Darling was talking about, help in this situation or in any legislation?—simply through the channels of contacting the congressmen and senators in the manner he outlined. We can't hope to bring about any program of restoration. Gabrielson has worked out a fine national program. You expounded it at the North American Wildlife Conference in Washington. That's the basis of your program right there, yet none of those can go unless you and you and all the rest of you take enough interest in it to see that your state is properly organized along the lines of the General Wildlife Federation. You can have that organization in almost any way you

want it as long as you get the people in it interested enough to help out on your state and federal program.

These are the three particular things that are moving—first the Byrd Committee, which is going to look into the matter of consolidation or better coordination.

Second, the antipollution legislation, pure water and better streams, and

Third, the federal aid for a nation-wide state by state wildlife restoration program.

There may be, of course, other things that will bob up from time to time—amendments to bills passed in previous sessions. After you pass a bill it may have to be changed simply because administration of it brought out these angles that needed correction. This will be the broad scale development in the next Congress.

Thank you.

WHAT THE OREGON GAME FARMS ARE DOING

By 'GENE M. SIMPSON, Superintendent of Game Farms, Oregon

In President Barker's telegram requesting this paper he asks that I "just tell what the Oregon Game Farms are doing this year." In a general way I can answer that question by simply saying that we are confining ourselves to the production of pheasants and operating to capacity. As a matter of fact our inventory of birds indicates that we are operating beyond capacity.

The largest number of pheasants ever produced on the Oregon Game Farms in one year was last season's production of between thirty-two and thirty-three thousand birds. At this writing, July 17, we have hatched 19,465 young pheasants at the eastern Oregon game farm near Pendleton, and 31,912 at the game farm near Eugene, or a total of 51,387 young pheasants. In addition to the birds already hatched we have upwards of 13,767 pheasant eggs under incubation from which we can probably count on raising at least 5000 pheasants more. We do not use eggs after about the tenth of July since our experience has been that the later eggs do not hatch as well or produce as good a bird as the earlier eggs.

In anticipation of an increased production the pen capacity of the eastern Oregon farm was at the beginning of the season increased to accommodate 6500 more birds. A new holding pen to be used for artificially brooded birds was constructed at the Corvallis farm with a capacity of 6500 birds. These additions have proven inadequate and we are now further increasing our holding capacity by fencing in three five-acre tracts, one at each of the game farms, in which we intend to hold 6000 additional pheasants under trail.

Until last year the Game Commission was not particularly concerned about the total capacity of its holding pens because it was the practice, after the holding pens were filled to release the young pheasants as soon as they were able to take care of themselves in the field, usually at the age of about ten weeks. The present policy is to hold as many birds as possible until after the close of the open season, upon the theory that when birds are released before the shooting season there

is a strong probability of their being killed within a few weeks, whereas a hen pheasant released after the closed season has an excellent chance to survive until the following season with the probability of raising as many as ten young, thus very greatly increasing in numbers the effectiveness of the game farm production.

Heretofore our birds have been held in wire covered holding pens at the game farms and in similar pens in different counties, the latter being provided by the sportsmen of these localities. For these sportsmen's pens the Game Commission furnishes the feed for the birds and the sportsmen provide someone to look after the birds and do the feeding. These birds are released as directed by the sportsmen themselves.

The purpose of the holding pen was to relieve congestion at the game farms and provide a means of holding birds until maturity and particularly to hold them until after the hunting season. We consider holding pens at different points in the state as valuable adjuncts to the game farm production, and something to be encouraged.

The fact that we had birds beyond the capacity of all our pens and that the construction of wire covered pens is expensive suggested the advisability of holding birds under brail thus permitting them to be confined in uncovered pens. The pens for brailed birds we now have under construction will be enclosed with six-foot two-inch poultry netting with two one-foot boards next to the ground. We expect to brail the birds at twelve weeks of age and after one month's time to change the brail to the other wing lest longer keeping the brail on one wing at that age result in deformity. With us brailing at this age is more or less experimental and we hope to learn much on this subject from our experience this year.

At the eastern Oregon farm this year we have used domestic hens exclusively for hatching purposes. At the Eugene farm we have used both setting hens and electric incubators and brooders. In the use of the setting hen and care after hatching we are following with little change the methods that have been gradually developed at the Oregon farms during preceding years. The nests are arranged in sections of four nests with closed fronts and these nests are placed in wire pens to protect the hens from being disturbed. Usually about twenty-four hens are placed in one enclosure. As the eggs hatch each hen is given about twenty-five birds and removed to a larger pen, where it remains. The hen is removed when she is of no further use to the small pheasants. Ordinarily this will be when they are six weeks of age. This larger pen has been prepared in advance for the reception of the hen and pheasants by being planted to rape, clover and other appropriate crops. This system of handling the young pheasants has proven very satisfactory in the past and results in strong, healthy birds.

More recently we have also been using a combination coop and runway in which to hold a hen and brood up to the age of six weeks, that has given excellent satisfaction, and as I have not heard of anything similar having been used elsewhere, I will give a brief description. It is an all-weather all-purpose coop and runway, is cat-, hawk-, and owl-proof and has a number of outstanding advantages not found in any other similar equipment in use at this time so far as I am advised. The entire combination is four by twelve feet in size and so arranged that one end is a coop two feet by four feet and the remainder is a runway

four feet by ten feet. The coop portion only is floored and has both a wire and a board cover. It is divided in the center so that the hen is confined in a space two feet by two feet leaving a space of the same size under cover in which to place feed for the pheasant chicks but beyond the reach of the hen.

The sides of the runway are of boards nineteen inches high, and the top is of one-inch mesh netting on sliding panels. The board top of the coop portion is sloping to shed rain, is hinged on the runway side so that it may be opened to clean out and air the coop and may also be used as a shade for part of the runway.

In use the hen is at all times kept in the two feet by two feet enclosure reserved for her and during the first twenty-four hours the young pheasants are also confined in the same space. A small trap door is then opened admitting the young birds to the remaining portion of the coop. If weather conditions are unfavorable they can be held in this part a week or so but ordinarily they are given the freedom of the entire coop and runway after about the third day. By allowing the hen but half of the floored space the young pheasants have a dry space in which their feed is placed.

At the end of about ten days, the young birds are temporarily confined in the floored portion while the whole combination is then moved in any direction a sufficient distance to place the runway on new ground and provide new forage—two factors essential to the most successful care of young pheasants.

This combination coop and runway will accommodate twenty-five young pheasants up to the age of six weeks, when they will then be sufficiently advanced to take from the hen and turn into the larger pens. The combination may be built so that it is collapsible and while somewhat more compact for transportation and storage is slightly more expensive to construct.

An acre of ground will easily accommodate seventy-five of these combination coops and runways. Allowing twelve weeks in which to raise two broods to weaning age in each coop there will be room enough on an acre to permit moving all of the coops and runways onto fresh ground every ten days without using the same ground a second time the same season. A conservative estimate of the number of birds to be raised from two broods to each coop would be thirty-six birds making a safe capacity of one acre under this system 2700 birds per year.

We now have 250 of these combination coops and runways in use and I have no hesitation in saying that my experience with this combination for the past two years convinces me that it is one of the best if not the best way to handle young pheasants up to the age of six weeks.

Domestic chickens may be raised in crowded brooder houses, but never the wild pheasant. From the very day it is hatched until released the ringneck pheasant longs for its freedom; it can not be domesticated, and we do not want to domesticate it. When we do it is no longer a game bird. The movable brood coop affords the young pheasant the privilege of foraging in new territory. Even though the amount of food thus obtained may be of negligible quantity, the natural pursuit

of food is an aid to the prevention of that unnatural vice so prevalent with young birds in close confinement—cannibalism.

The advantages of the use of this piece of equipment may be enumerated as follows: (1) The entire combination is small enough that it can be stored under cover in the winter for its preservation, (2) it can be easily sprayed as a precaution against disease and parasites, (3) the cover affords protection against storms, (4) the young birds are protected against their enemies, (5) clean ground and growing feed are provided as required, (6) the location is conveniently cultivated and planted to forage crops, (7) the birds are under direct control and easily transferred to larger pens, (8) it discourages cannibalism, and (9) it is well nigh ideal when birds are to be brooded with a domestic hen.

Heretofore we have depended almost entirely on poultrymen in the territory adjacent to the game farms for our supply of setting hens. We run standing advertisements in the local papers and collect hens. At the end of the season the hens are then sold in the open market. While this method of securing hens is satisfactory in that there is usually an abundant supply to draw from, there are two disadvantages. One is that in taking hens indiscriminately from all kinds of poultry yards there is always the danger of introducing disease and parasites, and the other disadvantage is that the average dependable setting hen is a large heavy type of hen and not so well adapted to mothering young pheasants.

I have found the most satisfactory hen for brooding pheasants to be a clean legged cross between the buff Cochin bantam and Rhode Island Red. We have a considerable number of these crosses on hand and are increasing our flock and hope eventually to produce all our own setting hens. In this way we will not only have a hen more reliable as a setter and better adapted to brooding young pheasants but will be better able to avoid disease and parasites.

Recognizing that the climate of eastern Oregon with its dry, cold winters is different from the warm, rainy winters of western Oregon suggested the advisability of using different breeds of pheasants for these two sections of the State. I was informed through Mrs. Denny, whose husband while Consul General at Shanghai introduced the Chinese pheasants into Oregon, that the climate at Shanghai was very much like that of western Oregon. This doubtless accounted largely for the success of the venture in transferring these birds from the Orient to the Occident, for you will recall that the first successful attempt in naturalization of pheasants in the United States was in 1882, when fifty birds were released in the Willamette Valley in western Oregon. Mongolia is in northern China and hence it occurred to me that the Mongolian pheasant would be better adapted to eastern Oregon, and experience has verified the correctness of this theory. Our pheasant stock at the Pendleton Farm is Mongolian blood, while in western Oregon the blood of the Chinese Ringneck predominates.

Last year we produced on the Oregon Game Farms something over 5000 pheasants by artificial methods using electric incubators and electric brooders. This year we will exceed that number by a few hundred. We have been limited in our production in this manner by the extent of our equipment. Our present brooder houses and runways

are not satisfactorily designed or constructed and we are now preparing an entirely new setup for our artificial hatching and brooding. This work is being carried on at the Corvallis Game Farm and in the future this method will be exclusively practiced there.

It is the writer's experience that pheasants hatched and brooded by artificial heat have not been as vigorous and gamey as those more naturally produced by the domestic hen, but this is not saying that it can not be done or that pheasants so produced while not of the excellence of the hen-hatched and brooded birds, may nevertheless be of a quality sufficiently wild, gamey, strong and vigorous as to be acceptable for release in the wilds. The principal advantage of the artificial method as I see it lies in the better opportunity to control disease and parasites. I have not been in a position to keep data on the cost of production by the two methods to determine definitely the relative cost. I hope to have more accurate information on this subject next year.

It is generally admitted that it is not wise to keep pheasants or even domestic chickens on the same ground year after year. Most healthful conditions come from change of ground annually. This is not always practicable. Annually plowing the ground may, under circumstances, be helpful, but it does not afford absolute protection particularly as against gape worms, the eggs of which may be distributed through the ground and brought to the surface by fish worms to be eaten by the fowls.

Our new setup at the Corvallis Farm is so designed that the young pheasants are not kept on the same ground longer than four weeks in two years. We recognize that this is not entirely perfect from a poultry veterinarian's angle but it does reduce the danger to near the minimum and from a practical standpoint is conceded by the specialists at the Oregon State College as being acceptable.

This change of ground is accomplished by having the brooder houses and the brooder runways each built separately and movable. There is a separate pen for each brooder house that is 24 ft. by 24 ft. in size, built in panels bolted together that they may be knocked down if desired. There is a collapsible hinged partition of simple construction for use to reduce the size of the pen when the birds are very young, keeping them nearer the brooder house. This is removed entirely in about two weeks. The brooder houses are ten feet by twelve feet and built on skids. The pens can easily be placed on skids and in this way both can be periodically moved to new locations. By arranging the brooder houses and pens in orderly rows the ground can each year be conveniently cultivated and sown to crop for the young birds.

Our operator in charge of the artificial hatching and brooding is a young woman who before entering college had considerable experience in the artificial production of chickens. Last year she graduated in poultry husbandry at Oregon State College and in addition to her regular work is now carrying on some experimental work in methods of incubation and brooding pheasants particularly as to temperature and moisture.

Mr. Einarsen of the U. S. Biological Survey stationed at the college has this season obtained the records of the temperature during incubation in the nests of two wild pheasants and we are hoping to

get some valuable suggestions from these records. In fact one reason for devoting the Corvallis Game Farm to artificial incubation and brooding is because it is in close proximity to the State College and the poultry husbandry and biological staff there are interested in our work and we expect to derive assistance from their cooperation.

It is our intention to continue this experimental work next year as corollary to our regular production in the hope that we may increase the percentage of incubator hatch, the percentage raised in the artificial brooders and improve generally the quality of the incubator birds.

In conclusion I might mention that the Game Commission and the 4-H Club organization are cooperating in interesting 4-H Club members in pheasant breeding. Considerable interest in the subject has been shown by 4-H Club members but it was thought inadvisable to engage in the work on too extensive a scale the first year but rather to limit the number who take it up to gain experience. Under the present plan used this year the State Game Commission supplies the eggs through the county 4-H Club leaders. The Commission also provides written instructions for building nests, coops and pens, preparing feed, feeding and management generally. This is mimeographed and with blue prints of equipment supplied to the club members who have undertaken the work. The Game Commission engages to buy all acceptable birds at the age of ten weeks for 75 cents per bird. Whether or not the work will be continued another year will depend on results obtained, the demand and on the advice of the 4-H Club leaders.

The Commission this year had more pheasant eggs than it could use and therefore advertised to supply eggs free to anyone wishing to experiment in raising pheasants. As a result the Commission distributed 10,000 eggs, but it is too early yet to report on results.

Taken all in all and considering our handicaps we are fairly well satisfied with the year's work thus far. Unusual weather might raise hob with our results, but is hardly probable. I have been in the game for over thirty-five years and find that there is always something new to be learned, always room for improvement. The sportsmen of the state want birds and our object is to give them just as many as we can. We always hope to raise more and better birds next year. The Game Commission's ultimate objective is 100,000 pheasants annually.

THE SALMON INDUSTRY OF THE COLUMBIA RIVER

By WILLIAM J. FINLEY, Oregon

Each stream that rises in the mountains and flows down across the valleys to the sea has certain values as we all know. The water may be used for domestic purposes, may be used for irrigation purposes, for navigation, for the production of fish, also for recreational purposes. It seems to me one of our greatest difficulties today is in these various uses of the rivers that certain industries and certain uses destroy the other uses and that is the difficulty in regard to our salmon of the Pacific northwest.

You all know the life history of the spring chinook salmon, that it comes in the early months of the spring and ascends gradually on up to the headwaters where it spawns and dies. The little fish come back downstream and finally reach the ocean and unless this can be done it means extermination of the species.

You all know about the Bonneville Dam, 140 miles from the mouth of the Columbia—a dam about 60 to 70 feet high. The engineers have done everything possible to put the proper fishways over this dam so the runs of salmon could get on up to the headwaters. However, there has not been enough money allotted for the conservation of salmon in regard to Bonneville Dam. On the other hand some 60 million was set aside for a dam farther on at Grand Coulee, 450 miles up from the mouth. This dam is perhaps considerably larger from a standpoint of power and there should be a fish ladder. This dam will average between 400 and 450 feet in height and is to be used for irrigation and power. To put any fishway on this dam is impracticable and the only alternative that can be offered is for a hatchery to be placed at the foot of the dam. Our objection to this is that the spring run chinook reach the dam before they are near the spawning stage, and have to be held and practically kill themselves in fighting to pass over the dam. This will mean the depletion of the spring run of chinook in the upper Columbia as far as that part is concerned.

This project is settled and nothing can be done.

Further protection may be checked by the organization of business money and people in the central part of Oregon and Washington who are fighting to put more dams in the Columbia and Snake rivers which will eventually cause the utter destruction of all the salmon there. The salmon of the Columbia means about ten or twelve million dollars annually to people along the river in that vicinity. Many families get their living from the fishery. It is a 5 or 6 per cent interest on an industry valued at 200 million dollars. They are spending many millions in building dams for power and particularly for irrigation and the question arises as to whether we will ever get enough in return for the destruction of a great industry like the salmon industry in the Columbia, although it is almost impossible to fight that thing. They say you can not fight development of a state or country. I think this can be done as in California years ago. A big company wanted to put a dam in the lower Klamath, in 1924 I think. It was put up to the Fish and Game Commission and to a vote of the people, who said there should be no high dam in the lower Klamath. There are places it seems to me in the State of Oregon and along the Pacific coast where power can be developed in streams aside from the best salmon streams. Whether the Columbia can be saved is doubtful but I think we should fight to bring this matter to the attention of the people. Consider the Sacramento River in this State. It was a very fine spring salmon stream years ago. The killing of the salmon was the result of big dams and irrigation, lack of screening ditches which let little fish out into the fields to die, and the pollution of streams.

We are fighting in Oregon today to clean up Willamette River because it is the best stream as far as the early run of chinook salmon is

concerned. If we can conserve that stream and clean it up we will always have at least a few salmon going upstream.

One use of a river so often destroys the other uses and that is very difficult to correct. In southern Oregon the Rogue River is a very valuable fishing stream. Mining operations in the upper reaches have destroyed fishing until now that once valuable stream is valueless, is simply a mudhole from one end to the other and out into the ocean. You can not stop mining, but the only way to prohibit such uses of our streams is to get interested people together, and it is the same in certain other streams where lumbering and logging are carried on. The river should be used by the public in the right way, but one industry uses it one way which destroys its value from all other standpoints. It so happens that power dams for irrigation are doing more damage in Oregon from the standpoint of fish than almost any other cause and the only possible way to stop it is to try to work out something to provide for proper screening of diversions and to prevent further pollution of streams.

THE SOIL CONSERVATION SERVICE

By EUGENE D. EATON, Soil Conservation Service, U. S. Department of Agriculture

I am glad to have this opportunity to discuss our service but with as full a program as you have here, I will attempt to make my remarks as brief as possible. I know that all of you are familiar with conditions and appreciate the validity of the remarks made by Mr. Darling about the dissipation of our natural resources and the depletion of soil and plant cover. I would like to take a little different angle from the restricted remarks made this morning. I was very much impressed with Mr. Barker's and Mr. Parvin's papers, indicating that in the 15 years of the history of this organization you consistently recommend the restriction of federal activities in wildlife management, and the fact that I am here representing another bureau that considers itself engaged in wildlife management work looks as though you failed. I would like to clarify my position to indicate that you need not look askance at our activities.

We have two types of responsibility in wildlife management as we see our program: from the point of view of operations which does not include the administration of game control and then from the point of view of land use planning.

The Soil Conservation Service was created by the Soil Conservation Act of 1935 which instructed the Secretary of Agriculture to create a soil conservation service and outline its functions, including control and preservation of soil and conservation of natural resources, which is a big group of duties. Then in 1936 the Soil Conservation and Comstock Allotment Act was passed, the Flood Control Act was passed and one or two additional duties were imposed upon the Soil Conservation Service. All this has given us a pretty full program, and we are a little bit slow in working it out.

In the western states, in which we are particularly interested at this meeting, we are centering our activities in the operations field on the reestablishment of vegetation as a means of erosion control. That has direct bearing on game welfare. I don't think that statement needs any explanation. You can not have game unless you have some place for it to live. In the course of our efforts to reestablish vegetation we do everything from range management to artificial revegetation and various types of engineering activities. We have created a section of wildlife management, particularly to see that all the operations will be as useful to wildlife welfare as they can possibly be made. We need some game and wildlife men to check with the range men, engineers, etc., to see that wildlife gets as much out of the taxpayers' dollar as can be made. I don't think that this conference would be opposed to any such activities. On the other hand we have duties of land use planning, especially in western states, vegetation rehabilitation, as we call it, and reestablishment which can be accomplished only by proper use. You can not go out and seed 100,000 million acres of grass and pay for it. It boils down to handling stock properly, seasonal use and the proper type of farming, forestry use and that sort of thing. Out here, for example, we have tremendous acreages of public lands. 160 million acres of public domain. In addition to that there are a good many millions of acres of national forests, military reservations and Indian reservations; millions of federal acquisitions that have not been assigned to any particular use. Throughout the 75 years during which public lands have been acquired by the government there has never been an attempt to formulate a consistent and unified policy of use or management of federal lands. One portion of a bureau may run public lands for one purpose according to a particular policy and another portion or bureau may be doing an entirely different thing. There has certainly been no concerted movement to intelligently manage public lands for unified program. The Soil Conservation Act of 1935 instructed the Secretary of Agriculture through the Soil Conservation Service to work out programs for proper use. It is very fortunate that the Chief of the Soil Conservation Service recognized the significance of wildlife conservation sufficiently to create a section of wildlife management to see that wildlife gets a proper share in that program. I would like to develop that idea a little further, but there is hardly time. I would like to request that in any of our activities in the various states you consider the Soil Conservation Service as attempting to work out better wildlife living conditions, to help the administration of game and its management and that we offer our help wherever needed.

GAME MANAGEMENT

By IRA N. GABRIELSON, Chief, U. S. Bureau of Biological Survey

I have known Elliott Barker for a number of years and I always thought he was a friend of mine. Now, I am not sure that he is. He put my predecessor on the program yesterday to talk and then expected me to follow up and make you think I am as good as he was.

That is a dirty trick. Anyway, don't expect me to talk anything like Jay Darling.

Mr. Barker asked me to talk on the subject of game management. I told him if there was any subject I could help him out with I would be glad to do so. This is his assignment, not mine. I am not going to attempt to cover the whole field of game management in these few minutes. I would like to talk on three different phases of game management in which we have mutual interest.

There has been a lot said about game management; a lot of enthusiasm and a good deal of vagueness as to just what it is. Many opinions differ, but I define it as the application of horse sense in the management of wildlife resources. That is just about all it is. There are a lot of questions regarding the handling of game we have not found the answers to. There is and always will be a necessity for studies and investigations of wildlife and its needs. Conditions are changing all the time. It would not be possible if we had all the wisdom of ancient wise men for us to draw up a game management program for the entire state or any other area and have it work out as we planned. There are too many things over which human agencies have no control. The only thing we can do is set up certain principles and objectives, work toward them and meet the conditions which will inevitably affect a resource as susceptible to outside influence as wildlife.

Three phases I want to mention on the subject of interest to me in this position as administrator of game resources are: first, the problem of forestry and wildlife management. Stripped to its essentials and forgetting details, we can often confuse ourselves as to just what this relationship is by getting too specific as to detail. If a man were given a national forest or an area of forest land to manage entirely from a game standpoint it would be managed in one way. If entirely from a forest standpoint he would manage it from another angle entirely. If you were to have an ideal forest area to produce great amounts of timber in the shortest time there would be little room for wildlife in this forest. The ideal forest from a production standpoint is a forest with the trees as close as they can grow with available water and shrubs so that they will produce the greatest number of board feet per acre. If you could produce a forest of this kind it would be practically a zoological desert. Some exist in the Pacific Northwest and in the redwood belt of this State that have little or no wildlife. So dense, they are completely overgrown, completely shaded, no production of food within reach—not enough vegetation to take care of anything but specialized forms.

If you were to manage a forest from a purely game standpoint you would go to the opposite extreme. You would have a great variety of vegetation broken up into small areas of open and brush and a little timber country, and you would not produce very much timber. All you fellows know when you go hunting for deer, grouse or any other forest species, you do not hunt dense stands, but hunt along forest margins, along the edges of burns, through brushy patches. Those animals are concentrated because there is a restricted area where they can get the greatest variety of things to fill their needs.

If you were to approach this problem from that standpoint you would find a definite conflict between forest and wildlife. Fortunately it is not possible for us to produce forests of that kind over great stretches of country.

In the Federal Forest Service there has developed an ideal management in recent years which is a very definite contribution to production of wildlife species. Their idea is for sustained yield for producing timber on a long time basis. We should look at the question of wildlife on this basis. A forest is a group of trees which will grow, mature and eventually be removed. Forestry goes through certain definite cycles. There is a period of about 20 years or longer after forest production gets well started where there is a maximum production of wildlife. After the forests reach production stage, wildlife falls into a decline. I think we should realize that the National Forest Service has recognized it in their program. This concept of sustained yield used in handling their forests is the principal aim to be considered in forestry and wildlife management.

In some areas it is necessary to modify their practices. We must concede that those forest officials are there to manage and produce, some are for watershed protection, but fundamentally to produce lumber. We can hope to get a consideration of wildlife only if it can be fitted into that picture which I think we should recognize. From a wildlife standpoint the most fundamental thing to be done in the management of forestry lands is to break it up into as small units as possible from an economic and forestry standpoint. That will be the principal answer. It will have to be worked out on the ground. We can not get down and draw out a management scheme on paper, to be applied to any and all forests. It must be worked out in accordance with the needs of the locality. The smaller the harvest units can be the more forest area over a total unit can be broken up into different age classes, the closer they will come to produce what would be an ideal game setup.

There are many unanswered questions in this forestry-wildlife management program. We have had for a number of years a setup which might answer many of those questions. Many years ago there was passed the McNary-McSweeney bill which provides for funds for forest biological research by the Biological Survey on forestry management. This bill contemplated over a several year period the Biological Survey would get \$150,000 yearly to carry on studies. The first appropriation was about \$15,000. Increases came until it reached \$45,000. The program called for \$15,000 increases each year. Under the economy program the appropriation was cut back to \$15,000 yearly, where it has stayed since. We are going to make an effort to get the rest of that authority because it is a definite contribution we can make to our program of forest management, to study forest biology from a wildlife standpoint, as contemplated in that act.

You fellows know as well as I that in the national forests we have the greatest potential area for big game anywhere in the United States. Whatever big game we may have in the future is going to be developed more or less on publicly owned forest lands, either state or federal. Your national forests in this western country are going to furnish the nuclei around which that can be built.

One other phase I want to mention in game management is its relation to agriculture and livestock interests. In many states whether they are going to have wildlife or not in those areas is dependent entirely upon the owners of the land, on the farmers and livestock men who control that land. In most states pheasants, quail and small game are going to be produced on land that is owned privately and managed for definite private purposes, or it is not going to be produced at all. There are many questions that will arise in connection with such a program. Fundamentally the question of its success will depend on the extent of cooperation, good will and understanding of the people who own that land. That is particularly true in the states east of the Rockies. Whether they are going to have any small wildlife or not will depend on the cooperation of the owners and controllers of that land as far as we can see and this apparently will always be the case. I think we can help on that. I think we made a great start in these cooperative research units and demonstration units which Jay Darling spoke about. Those units have been set up in nine colleges in cooperation with state game commissioners. Each unit is financed by the Biological Survey, by private funds, funds from state game commissions and from the college. Each unit is controlled by a committee of three members, a representative of the game commission designated by that commission, a representative of the college designated by the college, and a representative of the Biological Survey.

The program is made up by this committee. This program must be devoted to practical problems that confront state game commissioners and officials in the administration of wildlife resources. We have no desire to dictate what that program might be. This is left up to the local people entirely. The only reservation we have made is that in the fundamental research program they do not select the same subject to work on. We have only nine stations and we need to know many things and we have reserved the right to suggest the fundamental research program that they be correlated with no two stations working on the same program. Each station has taken one major subject in addition to a variety of smaller subjects, demonstrations that are of immediate concern to state game authorities in that state. I believe it is working out as contemplated and that it will be more than a research program.

We have set up as many of the demonstration areas on state and other publicly owned lands where could be put into effect on a small scale the things we already know about management of certain forms of wildlife. These units are being developed now in certain localities. Any information obtained is placed in the hands of the public. These aim at the source of the various problems that are coming up, and is one of the greatest moves we have ever undertaken in an attempt to approach this problem from a practical standpoint. The units are widely scattered over the United States, with the idea of covering as many of the major ecological areas as possible with the money available. We have arranged for an exchange of information between units so that everyone has available all the information being gathered at other stations. Nothing is secret about it. Any of the other states are welcome to any information that we get. We hope to make this public and available as fast as it is in shape to be developed. Those stations

beginning in Connecticut, Virginia, Alabama, Ohio, Iowa, Texas, Utah, and Oregon, are widely scattered over the country.

Just to give an idea of the variety of problems which they are undertaking, here is a list of species on which the stations are making major study: whitetail and muletail deer, cottontail rabbits, muskrats, wood duck, mourning dove, raccoon, pheasant, quail and wild turkey. In each state the problem that is of most direct concern to that commission is being studied. This program, I think, can well be extended as time goes on to at least double the number of stations. There are about 15 or 16 ecological units in this country, about two really need to be divided and have stations in both parts of the region. There is enough difference, for instance, in the prairie country east of the Rockies, although the general ecological condition is about the same. I have great hopes that this thing will work out. I believe the development has been satisfactory from the standpoint of most of the commissions cooperating with us.

In this connection there is one other thing that may be of interest which you may not know. The Department of Agriculture has a fund known as the Bankhead-Jones fund for basic research. They have enough money from that fund for a very useful thing. There are a great many state agencies that are setting up different kinds of game management programs in cooperation with private land owners. Some of the land owners are setting up game programs of their own. We have set up some on our own areas in an attempt to find out certain definite things. We have enough money assigned to put one biologist and one agricultural economist to study farm ecology and farm management together to carry over different types and different states which are being tried out and experimented with to see if we can not develop some basic information that will be of fundamental value to any agency having to do with demonstrations of wild life resources. How long it will take to make this study is indefinite but it is under way and we have great hopes that out of it will come something of value to us.

One other phase of the thing we are concerned with is the management of migratory waterfowl. We are attempting to do on a nationwide scale the same thing you are doing in managing upland game resources in your own states, starting at a disadvantage compared to many states because you had a pretty good supply to start with. We are starting with a shortage of the two essentials in any management program—short of marsh lands to produce ducks and short of ducks to live there if we had the marsh lands. We believe the program is perfectly sound biologically and also economically. It is based on two things: one, we had to have more marshes and more water for the birds, and the other, we had to have more birds for breeding stock if we were to continue to regard migratory waterfowl as a species that might be wanted and utilized. We made drastic regulations last year. No use of telling you about that. To succeed it is going to be necessary to drastically restrict the kill of birds until we can fill up Canadian marshes with new stock and also new marshes by concentrating in states where ducks are being raised. If we don't do that there is no use in spending money to develop marshes.

I want you to know that as far as possible we want to cooperate in making these regulations in a way to be fair to everyone, but you will

appreciate the problem in that there are 48 different states and 48 different opinions on how to do it. We wrote every game commission in the United States and asked for certain information and recommendations. Out of them we got some very constructive suggestions which range all the way from unofficial recommendations of several commissions that the season be closed entirely for a number of years, to recommendations from some that we go back to the old days of killing as many as possible. I want you to feel we are going to take every way possible to draw up regulations that will evenly and fairly distribute what hunting is available and apportion the number of ducks to be taken over the entire country. We can only approximate that point of view. We do not expect to do a perfect job, but we believe our program is right and sound and I would a lot rather be damned for a few years by duck hunters than be damned forever for an entire depletion of the species.

We started on a basis of acquiring and restoring regions or lakes destroyed or partially so from one cause or another. We must realize, however, we can never bring back the number of ducks we had in years past. Millions of acres of marsh lands have been drained for agricultural and other purposes that are far too valuable for us to ever dream of putting water back on them. On the other hand, other millions of acres have been drained that are useless for any purpose or practically useless since the water was taken off. These are the places in which we are interested. We have purchased since money first became available, a million and a half acres of this kind of land. I know some of you have tried to buy land and appreciate what a hard job it is. I have come to have an aversion to all lawyers because the only thing they can do is to say "you can't." I guess it is all right, but the administration of the law in this country is beyond my comprehension. When we get through buying and are ready to actually take possession, there are a lot of gray hairs in the heads of the men handling the job. We have succeeded in buying and have under possession an acquisition of a million acres of land. The average size of these projects is 28,000 acres, so that you can see we are well along on many of them. We are proud of the job that has been done. Some mistakes have been made but we are trying to remedy them. The wonderful thing is not the mistakes, but how we kept from making a lot more under the pressure we were working. Lots of land has water on it now. In North Dakota practically all the water left to the State outside of the Missouri River and Denver Lakes is in migratory waterfowl refuges. I wish you could see some of them. The Upper Souris River in North Dakota, rises in Canada and comes across the border into wonderful duck producing areas. I saw it shortly after some had been drained, and some of it produced good land. Some land had been taken over by the State and County and we now have 100 miles of that river valley divided into two units which we call Upper and Lower Souris River Refuge which extends just below the Canadian line. A storage dam has been built to store 112,000 acre feet of water, and the dam is practically full with the spring runoff. This is to maintain a water level on down the river. At the upper end we are now building a low dam to maintain the upper six miles of the lake at somewhere near a normal level and making six miles of breeding and feeding marsh for the ducks. The lake is 28 miles

long. This big storage unit will also be one of the best fishing places in North Dakota. We are working with the Bureau of Fisheries, who have promised to help us. This lake will be a permanent lake because the water is 21 feet deep in the largest part. Below the dam we built two other dikes six miles apart. As the water rises from these units it flows into the marshes and maintains them. Down the river in the other 50 miles we have a series of seven dams across the valley for stabilizing the water level at a point where it would be best breeding marsh. Approximately one-half of the land area is in the form of marshes. We have a constant water level of from six inches to three feet over most of the units. Two or three streams that run in those units have an annual runoff enough to maintain them. We have developed those areas so that if there is not water enough for all, some can be maintained in actual condition and the rest discontinued temporarily. C. C. C. boys have gathered 160 tons of aquatic plants and planted them according to depth of water requirement. That is one of the major developments. There are many others. We have over one million acres of water in the country now and of course many projects are still uncompleted.

We have another thing in North Dakota which is as valuable as these larger units and that is that two years ago the North Dakota Legislature passed a law which said any land flooded would be relieved of taxation. Instead of draining, the owners want to store water as a result of the law. We have as a result something like 75,000 acres in small refuges scattered around the larger areas. It fairly gives us a perpetual easement to use this area for waterfowl refuge purposes in return for our building structures and doing necessary work of development. Thirty-nine of these projects are nearing completion. Just before I left Washington, 100 others in which easements had been obtained from the landowners had been sent in. There will probably be another 100,000 acres developed into fine marsh and lowland that will benefit and materially assist our program.

The same thing is being done in South Dakota in cooperation with the Game Commission. The development of 175 small water area lakes and marshes is under way. They are getting relief labor to do the job. We furnish the supervision and the engineering and that is all it costs the Biological Survey to get these lands, and it is all it is costing the State Game Commission. It is my opinion that this is just as fine a part of the program as the larger refuge development. I would like to see it extended just as far as we can go, particularly in those nesting states. I believe when this refuge program is completed it will be seen that we have gone a long way toward the promotion of the migratory waterfowl program. If this program can be completed it contemplates the development of 300,000 acres in the states that are natural nesting areas for migratory waterfowl. It also contemplates the establishment of at least every 100 miles refuges where birds may rest and feed without being shot at and sufficient wintering grounds in the south to take care of concentrated birds. If we can build this system of refuges I believe that we will have a pretty fine breeding stock to draw from on those refuges all the time as the birds fly north and south.

I think it will work out that way. How much chance we have of getting away with the program I do not know. There are two big "ifs"

in it. One is if we can get enough money and the other is to get the sportsmen to cooperate and rescind some of their privileges until we can build this thing back and get a supply of birds to take care of us. It will never be possible to kill 500 birds in a day, but I do believe we can develop the thing to the point where we can be assured of a moderate amount of sport in hunting these birds for time to come. We can all help. The Biological Survey can not do it alone. I think you fellows in the west can help in the program. For everyone who says you have to give us more privileges, there are three who say it is tough to do without the birds but we will do it in the interest of posterity. I have hopes that the thing will work out. We are asking your cooperation in letting your sportsmen know just how we are progressing on this program. Your cooperation and efforts to help develop this idea in your State is certain to be appreciated.

NECESSITY FOR UNIFORM BOUNTIES ON PREDATORS

By KENNETH F. MACDONALD, Montana Department of Fish and Game

I appreciate the fact that the subject assigned to me is of minor importance, but I do believe that it is a matter deserving of consideration by this Association. I wish to make clear at the start that Montana has had the predatory animal bounty control system. The stockmen have always been powerful enough to keep this system in effect. We, in Montana, have had practically every system of bounty methods that could possibly be devised. This has gone back over a period of 20 or 30 years, and I am sure there is no bounty system that has not been in effect some time during that period in our State.

At one time there was \$100,000 made available for bounties through a portion of a livestock tax and from the general fund. In any state \$100,000 would more than take care of the predatory animal work, but Montana had that much for years until it got so rotten the people took steps to change that method. At the present time the Fish and Game Commission is spending about \$10,000 a year to control predators; \$7,500 was taken from the fish and game fund by the Legislature and put into the bounty fund, which is administered by the Livestock Commission. The livestock men, in order to contribute their part to the program, have passed a law which puts an assessment on all livestock and poultry and other forms of domestic stock.

Last year bounties were paid on 14,000 coyotes in Montana, at \$2 apiece, making \$28,000. We have felt that the present system was absolutely foolproof so far as it could be, but this year under the system the bounties are paid on coyotes during May and June during the pupping season. This year we found the heaviest bounties are paid in the counties adjacent to Canadian territories and also bordering the states which have no bounties. The counts show bordering counties pay the heaviest bounty, which indicates we are paying bounties on animals taken from other states and Canada.

This year the bounties were exceptionally heavy. We started an investigation and found one man sent in 560 coyote pups. We found

that all these coyote pups he had sent in, he had taken the pains to skin in order to preserve the pelt, which he tanned. We found out by taking them to the laboratory at Helena and sending some to the Biological Survey that they were nothing more than gophers.

This year 300 were put in for bounties. We don't know how long this has been going on, but we are always sure it has been there, but it is our hope we will be able to bring these fellows into court and see that just punishment is meted out.

We find the Montana Commission is paying \$25 on mountain lions taken any time during the year. We accused Idaho that we were paying bounties on mountain lions taken in their State, but on investigation Idaho found it necessary to put a \$100 bounty on mountain lions. Our records show that during that period, very few lions were taken in Montana and at the same time the lion population in Idaho had increased and Idaho thought they were paying a bounty on our lions. Now they have a \$15 bounty and we have \$25, and that results in a reversal of the situation. We now have reason to believe that we are paying bounties on lions taken in Idaho.

That is something we think should be worked out. In order to remove any inducement to misrepresent the place of killing of a predator, we should adopt a uniform bounty system, and also a uniform system of marking the pelts.

At the present time there are no two states that use the same system of marking the pelt, especially of the mountain lion. In Montana we remove the head of the lion which is sometimes held for trophy purposes. We have adopted the system of making a slit between the shoulders and marking that with a stamp "MBP," which means "Montana Bounty Paid," but we find that other states put a hole in one or the other ear or jaw, or some other place, and we have no way of knowing whether a bounty has been paid in seven or eight other states. We think some method should be devised so that a uniform bounty and marking system can be adopted by all the western states.

There has been so much fraud in this whole proposition it really seems silly not to take some step toward correcting it.

Last year we found a man in Canada, an Indian, who had 15 coyotes and was raising pups and selling these pups for 50 cents each. People would buy them and send them to us and get \$2.

I don't know what would be the best way to go about arbitrating this. We don't care what the system is, and it is only natural that a bounty should be paid on the mountain lion as they are taking a heavy toll on the deer and elk, but if we could establish a uniform bounty, it would serve to discourage this fraud that has existed in the past 15 or 20 years. I do wish that the representatives of the western states would give some thought to this and agree on some uniform system on bounty payments and markings.

Just another thing while I have the floor; I see Alvin Seale of Steinhart Aquarium here, and that reminds me of the distribution of fish. We have been up against a proposition of taking care of these fish from hatcheries to the planting place. For years we used the can method of distribution, putting 16 ounces of fish to each can. That was not successful. We have gone through the stages of the use of tanks and aerators, and have gone from that to the system of aerating the water by agitation.

Discussion

DAVIS: It all goes to show the old system in California is not so bad. Mr. Barker is going to broadcast and has asked me to preside in his absence. If you have anything to suggest regarding this bounty business, now is a good time to get it off your chest.

ECKERT: I would like to say we are paying a \$15 bounty and when we receive skins they have to be accompanied by an affidavit. I think Mr. MacDonald is right when he says we should set a uniform price on bounties. We had some 278 taken out this winter. If we could get together, we would be glad to change our price.

DAVIS: Do you pay a bounty on anything except lions?

ECKERT: Lions, only.

DAVIS: How about Montana?

MACDONALD: Wolves, lions and coyotes.

LEWIS: We don't pay a bounty. We had one and we were buying the output of Mexico on coyotes. We hunt them and try to trap the coyotes and hunt the lions. Even if all the western states agreed on an equal bounty to be paid, your states on the borders of Mexico and Canada would be confronted with the same thing.

MACDONALD: I think we could get Canada to cooperate. I don't know about Mexico.

LEWIS: I believe that if the states would take the money they would pay out and hire the right kind of lion hunters and trappers, that possibly as much or more could be accomplished than on the bounty system. How much do you figure it costs for bounties?

MACDONALD: It runs between 25 and 30 thousand dollars. We think the most effective way is through the state trappers, anything but the bounty, but the sportsmen don't think it advisable to eliminate the bounties. They think there should be some in each game area, but the stockmen are in control in this matter in the legislature and they feel there is no value to any predatory animal and they should all be destroyed and that is the way to do it.

DAVIS: I understand some years ago that Washington had a system.

G. DAVIS, Washington: We pay \$1 on coyotes; \$5 on cats; \$25 on cougars. They request from our director permission to hunt in a certain locality where animals caught there are taken to the game protector. They stamp them and then they take an affidavit and get it signed. So far it is working very well.

MACAULEY: We insist the hides be green and we have a right to refuse any bounty. I have refused bounty on several cougars and coyotes, and if I am not satisfied I can demand the carcass and do it that way. So far we have not had much trouble. Years ago, we did. In 1925 in central Washington I investigated and found where they were shipping cats in from Mexico to Texas and then to Washington and British Columbia. The bounty was paid by a girl in the auditor's office who didn't care whether it was a wild cat or a house cat. Some hunters were paid as high as five and six thousand dollars.

LATEST DEVELOPMENTS IN FISH FOOD STUDIES

By FRED J. FOSTER, U. S. Bureau of Fisheries

Due to the large number of charts used to illustrate Mr. Foster's talk, it is not possible to print it here. However, the paper will be published later by the Bureau of Fisheries.

THE ROOSEVELT ELK OF THE OLYMPIC PENINSULA

By H. D. HINKLEY, Washington State Game Commission

There's an old maxim, that "you can't improve on the prodigality of Mother Nature," but from a practical wildlife viewpoint most of us have found that scientific practices have made it possible to improve on Nature. The problem of arriving at a happy medium in setting game seasons is not solved so easily, with sportsmen on one hand asking—and expecting—"open seasons" on protected game and the conservationists earnestly asking for rigid control of game at any cost. Then, you are familiar with the several intermediate factions, those with axes to grind, who urge passing of seasonal regulations favoring their own selfish ends. From all this potpourri of public opinion, state game commissions must make decisions which are designed first to properly conserve game and next to satisfy the majority of anglers and nimrods, fairly and unequivocally. Such is the situation faced by the Washington Game Commission in the matter of a proposed "open season" on the Roosevelt elk of the Olympic Peninsula during 1936.

The Roosevelt elk is a prize trophy of hunters. Reverberations from conservation agencies and private individuals during the past few years have echoed throughout the State of Washington. Let us briefly study the habits and background of this fine animal which now ranges in the "last frontier of America"—the Olympic Peninsula.

Named after that intrepid and beloved American sportsman, Theodore Roosevelt, the elk which roamed the prairies and mountains of the United States in great abundance during early colonial days, is a close relative of the European stag. It is by far the handsomest and largest member of the deer family in America. Roosevelt bulls often weigh upwards of 1200 pounds with the Yellowstone species weighing close to the 800 pound mark. Originally the elk was the most wide ranging of our hoofed game animals. It occupied all of the continent from north of Peace River, Canada, south to southern New Mexico and from central Massachusetts and North Carolina to the Pacific Coast of California. It appeared to be equally at home in the forested region east of the Mississippi River and on the open plains flanking the Rocky Mountains. Its range also extended from sea-level to above timberline on lofty mountain ridges.

Exterminated throughout most of their original range, elk still occupy some of their early haunts in western Canada, Montana,

Wyoming, Colorado and the Pacific Coast states. The last elk was killed in Pennsylvania about sixty years ago and in Michigan and Minnesota about twenty years ago. The main body of the survivors is now in the Yellowstone Park region.

The western wapiti or Roosevelt elk is almost wholly limited to the Olympic Peninsula, but is found on Vancouver Island, and parts of western Oregon and California.

The Washington State Game Commission has tentatively considered an "open season" on Roosevelt elk on the Olympic Peninsula and on this schedule: October 20 to November 1, in the counties of Clallam and part of Jefferson lying south of the Olympic Peninsula. These two areas have been the spearhead of much controversy. Population of Roosevelt and Yellowstone elk in the State of Washington is set at 10,000 with about 7000 to 8000 of this number ranging in the Olympic Peninsula.

Most of the Roosevelt elk in the Olympics range along the western slope, but a few are found all the way around the range where there is unoccupied country in or out of the national forest. There is unquestionably room and feed for twice the number and always will be on land which is mostly within the national forest and entirely useless for agricultural or grazing purposes. Elk have increased rapidly since they have been protected, in spite of those killed by peninsula residents, predatory animals and the ravages of the tick. The increase in the Olympic elk population depends very largely on the decrease of these destructive agencies. By wise cooperation ranchers, farmers, and residents can render very helpful and worthwhile service in protecting big game.

You are all familiar with the elk's struggle for preservation through the years. Indians through the centuries sought the elk for a food provender while later early settlers and the sturdy pioneers hewing a new civilization in the great Olympic wilderness leaned more and more upon the Roosevelt elk, the most rugged species in the world. Eventually, the white man learned that if the elk were to survive and thrive, adequate protective measures must be enacted. However, in many sections of the peninsula, before protective measures were enacted, the elk were exterminated by white settlers. With elk guardianship in force, the elk had only their wild animal foes to fear.

Setting bounties to arrest the destruction caused by predators was the next major step in the direction of elk preservation. Predators were preying on livestock and settlers took up the challenge as a "call to arms."

Elimination of the major destructive influences from the life of the elk resulted in marked increases in herds in favorable localities. Herds increased materially. Protected from the band of wasteful hunters, free from the persecution of predators, the elk increased beyond the limit of their natural food supply. This apparently began to happen about 1917, first in the Hoh River. In later years, other valleys of the western Olympics were seriously affected. The natural check has been a limitation of natural forage. Increase in the herds with a lack of an equal balance of forage soon became a new destructive force—starvation.

In many areas of the Olympics, Roosevelt elk have destroyed most of the natural food—plants, root and branch. What is actually happening is that the overstocked upland winter ranges, ravaged, denuded and stripped of food are reduced to the point where many acres of feeding area can never come back. Some conservationists go so far as to point out that these ranges will never be able to carry more than twenty-five per cent of the elk they would have, had they been properly managed before the damage was done.

Today, we find the central part of the peninsula inhabited by the starving remnants of once great bands, a problem which has reached a condition of range overstocking.

There seems but one adequate and feasible solution. After careful consideration of the question, the Washington State Game Commission is seriously considering a regional open season to stem the tide of elk decrease in all areas that are threatened with overstocking and the inevitable permanent range damage. An open season on all Roosevelt elk during the fall and early winter would soon return the Roosevelt elk to numbers the forage would support. Many of the Roosevelt elk may be likened to park bears which have lost their fear of man through semidomestication.

In support of the Washington State Game Commission's proposal to thin the ranks of Roosevelt elk for the good of the species, it can be said that this action should have no detrimental effects on Olympic Peninsula elk. It will tend to promulgate the species and safeguard this grand animal for future generations. Because of the rough terrain and mountainous topography of the Olympic Range, particularly in the region of the contemplated open season, only the hardiest of hunters, expert woodsmen and sportsmen with training in outdoor life will be apt to penetrate this rough country. Therefore, the district will not be overrun with hunters, as might be supposed, but will, instead, be largely restricted to the "fit and able" among nimrods.

It is a peculiarity of Roosevelt elk that generations of the animal range close to the same grazing area. Efforts have been made by game forces to drive the animals to more fertile and forage-laden valleys, but to no avail. Thus, we must face the truism that often a herd of elk may be seen slowly starving on overgrazed land with a fertile green pasture of forage just over a ridge a short distance away.

Complaints of ranchers, truck gardeners and farmers that elk become—out of necessity—a nuisance and are feeding on vegetation and produce of these peninsula residents have been investigated and substantiated. The forage shortage on the Roosevelt elk range has caused bands of elk to seek food in the lowlands, even to grazing in and about the premises of residents. Predatory elk feeding under such conditions are a real menace to public property and action must be taken to halt this destruction. An open season in these districts would curtail the migrations of elk into the vicinity of residents' property.

Sharper lookout can be kept on predators preying on young elk, with perhaps, a raise in bounty payments as an added inducement to bounty hunters. In the spring of the year the bear and cougar cause probably the greatest destruction during the calving season. The bear is one of the principal menaces that we have on the Olympic Peninsula as a predator on elk. Cougars in the State, due to organized predatory

drives and the success of licensed bounty hunters, are being held pretty well in check. Bobcats also prey on young calves in the springtime.

Through the efforts of licensed bounty hunters, 1935 figures show that a total of 53 cougars were killed in Clallam County and 5 in Jefferson County with 285 bobcats taken in Clallam County, and 25 bagged in Jefferson County. Clallam and Jefferson are two counties in which an open season on elk would be permitted.

In the interests of conservation it is well to point out that protection of any wildlife is a problem wrought with many positive and negative angles, each embracing the earnest conclusions and convictions of various agencies and individuals. If regulatory measures are applied to preserve the posterity of Roosevelt elk, it may mean that elimination or curtailment of excess numbers is the best safeguard and remedial measure available to protect the perpetuity of this species.

Public sentiment and overzealousness on the part of eastern conservationists, agencies and individuals who are clearly out of step with the range problems of western game, are common hindrances to progressive application of practical game management practices. Laxity in game management and systematic guardianship of their vast game resources has caused many eastern states to launch an elaborate program of restoration of game birds, fish and big game. The State of Washington is guarding its game assets jealously and is expending every effort to save it for future generations. Washington game must never reach *status quo* and the State Game Commission will continue its pledge to this commonwealth to strive to foster and promote the best interests of conservation and guardianship of a great wildlife heritage.

BARKER: The next speaker on the program this afternoon is a man who helped to make this Association possible—perhaps more than any other man—the man who regularly meets with us and without whom no meeting would be fully complete. I am not going to tell you very much about him—I might get off on the wrong foot, but I am going to introduce Dave Madsen to talk on whatever he pleases.

ADDRESS

By DAVID H. MADSEN, U. S. National Park Service

Carl Shoemaker said today the Taylor Grazing Act in itself was not so bad, the administration of the act was what did not satisfy the public. At the same time we are hearing a great deal of talk about coordinating government bureaus in order to get better cooperation and more and better results. My own opinion is that none of us have learned how far we can go in cooperating with one another in bringing about conservation of wildlife. I am going to paint a picture of one area in which there is cooperation between state and federal agencies. I refer to Yellowstone National Park. We have with us today three game commissioners who represent this park, from the states of Idaho, Wyoming and Montana, all of whom are interested in what goes on in Yellowstone Park. There is more game there than in any other area of that size. The elk herds once on the way to extinction are now so overgrown that we are unable to take care of them. We have all the buffalo

we know what to do with. We do not have an increase of deer or antelope or mountain sheep and that is largely due to an overgrazed range and we are not trying to correct it.

In Yellowstone Park and vicinity, there are more trout than in any like area in the United States. Mr. Foster has shown that the Bureau of Fisheries has taken as much as 38,000,000 eggs from Yellowstone Lake.

I want to point out to you what I mean by cooperation. At the time Mr. Foster came into the Bureau of Fisheries and I went into the National Park Service, there was absolutely no method of cooperation between the agencies I referred to. The Bureau of Fisheries, the Park Service, the Biological Survey and the Forest Service was each going its own way. The point involved was some sort of control over a number of deer, antelope, mountain sheep, fish, distribution of eggs, etc. It is a very complicated picture. The herd grew to a point where it was very much in excess. We were faced with the problem of reducing the herd. We did not want to kill the elk leaving the Park, which are the property of Montana; the Montana sportsmen are entitled to take them, so it would not be proper for us to tell Montana we were going to take about 4000 head of elk. Therefore, we met with the Montana Game Department to determine the best method to take 4000 head of elk out of this band each year. They were fully cooperative and extended their season. In Washington, the people cooperated in the handling of the elk herd in reducing them to the capacity of the range. So much for the big game.

Now let us turn to fish. The agreement is that the park waters will be stocked. There is no friction. There is no duplication of authority. There are not too many men; and yet the picture of cooperation is complete. Mr. Foster and his corps of men go into the Yellowstone Park and take 38,000,000 eggs. These eggs are hatched and they are ready for distribution. We then decide where and how these eggs shall be planted in the Park. He, in turn, supplies state game departments with a certain amount of eggs, thus again bringing about perfect cooperation of the distribution of a product which belongs to the people. He plants the rest of them outside of the Park.

We had trouble with disease among elk, etc., in Yellowstone Park. Mr. Bill Rush, who originated the investigation, under the joint direction of the National Parks and Biological Survey, made a study on bringing about the same results and, after this, these game departments were at odds. Everybody believed that everything we did was against them. We have brought about cooperation on this and we didn't need any law to do it. We worked together to do it. So now we talk about the coordination of government bureaus. The best results can be brought about through cooperation between the several agencies involved. Whenever we wish to establish a national park area, without any exception, there has been objection on the part of some people.

The sportsmen have, as a rule, objected to enlargement of national park areas on the theory that the game becomes bottled up in the park and they have no opportunity to hunt. The purpose of the national park policy is to maintain the areas under its supervision in as nearly a primeval condition as possible. That means everything in the national park and consequently there is no hunting allowed in the parks.

Now, I am not inclined to believe that the national parks are in any way detrimental to the sportsmen's interests unless they should be extended to the point where they take in an all-year range and exclude hunting. Yellowstone Park is an example. Four thousand elk can be killed annually in Montana in addition to those killed elsewhere, probably making more than eight thousand elk that are killed annually outside of the park. These animals are what I consider the overflow of that great National Park. Except for the Park, there would not have been so many; and that is no reflection on the agencies, because the Forest Service comes and sets aside game refuges and excludes livestock therefrom; but the national parks do become a reserve or a game preserve out of which the overflow goes to the sportsmen on the outside. The only danger in taking away any of the benefits which the sportsmen receive is to extend the area to where it takes in the all-year range.

In reference to the fish planting policy of the National Park Service, every man interested in fish distribution has regretted the indiscriminate planting of fish in all kinds of waters. The National Park Service has suffered along with other areas by the reason of this unwise distribution of fish. Our policy is this: in waters where there are now no exotic species, none will be introduced. The native species will be protected. In waters which are more useful as scenic attractions and where there are no fish, there will be no stocking at all. I could refer to several lakes where it doesn't look right to see fishermen. We have religiously avoided planting fish where pollution occurs—we are going to try to maintain in the national parks, in the waters that are not already contaminated, a clean stock of native fish.

It happens now that Yellowstone Lake contains the only very large stock of native trout except Georgetown Lake in Montana. Although our fish planting may not be so successful, it must be remembered that our job, according to law, is to maintain the parks in a natural primitive condition. In waters where exotic trout have already been introduced, we will maintain them.

I want you to know that I certainly appreciate, as does my division of the Federal Government, the very friendly attitude which the game departments have for the Park Service, and I wish to assure you that in every area which is proposed as a national park, I have never overlooked the rights of the sportsmen. Also I want to say to you that the paper which Mr. Hinkley read today was a very excellent contribution and gives a very excellent picture of that area.

ADDRESS

By W. L. DUTTON, Chief, Division of Grazing Service,
U. S. Forest Service

Mr. Barker asked if I would give you a short expression of the so-called new grazing policy. I don't suppose that one could select, if one tried, a more difficult subject to address to an audience when one has just taken over a new position. One of the most outstanding reasons is that the game wardens and commissioners from the eleven western states know the very vital interest that exists between live-

stock interests and adjacent forest land and the game thereon. I am a western man and I do not yet have the Washington viewpoint. So I am glad to make a few remarks here today.

For the period 1924 to 1934 the Grazing Division of the Forest Service did have term permits; and with the expiration of the ten-year permit period, we had one year during which no permits were issued. At the same time we had initiated an economic survey to determine whether the basic principles on which we were making our distribution were sound. That survey was not completed in time so the issuance of permits was delayed; but beginning with the 1935-1936 period, the decision was made by the Forester's office to again issue term permits. By way of experience, prior to that decision, a conference was held, attended by representatives of the two livestock associations and several western senators and congressmen. From the very beginning of that conference, it was apparent that there was no possible way there of ever harmonizing the interests that had to do with the issuance of grazing permits; but after seven or eight days of conference, there was published in the newspapers the announcement of the new grazing policy and those two small paragraphs which outlined the basic principles, with an avalanche of criticism from all over the United States. I want to read to you the two short paragraphs which resulted in that avalanche of criticism:

“(1) The term permits for the period 1936 to 1945, inclusive, will be issued for preference numbers of stock within the maximum limit and the commensurateness of established permittees. No reductions in preference numbers of livestock will be made in 1936. Each term permit will contain a clause specifying the reduction percentage that can be made for distribution. Such reduction, when taken together with reduction for distribution made in 1935, shall not exceed 20 per cent in any case for the term-permit period 1936 to 1945, inclusive. No greater reduction than five per cent will be made for distribution in any one year.

“(2) The maximum reduction that can be made for any or all purposes shall not exceed 30 per cent, or 15 per cent in any one year, for the period 1935 to 1940, inclusive. At the expiration of the year 1940, such reductions for protection can be made in term permits as the circumstances justify.”

Now then, it is evident to those close to the situation just why we had this storm of protest. In the first place, the large established livestock operators have been for many years stocked above their present permit total allotments. The Forest Service contends that the right to regulate grazing must rest at all times with the Federal Government. Therefore, they could not see fit to grant a long-time permit without any provisions for any purposes. The larger operator, then, was not satisfied with the new policy even though he got the ten-year permit. The smaller operator within the forest with a small number of stock is not satisfied because he believes that we have not made sufficient provisions for a further distribution and the small operator now on the forest or the large operator who does not now share the use of the forest, feels that there should be a greater division of the permit allotments.

Another factor of dissent is tied up in game conservation. I don't agree with some of that dissention or with the man who believes

that all livestock, both sheep and cattle, should be completely excluded from the national forests; so, as I say, we felt that the new policy goes just about as far as it is humanly possible to harmonize those conflicting views.

Some two years ago at a national meeting of the Forest Service, with representatives from every region of the country, basic principles were laid down, and I regret exceedingly that these principles have not been given as much publicity as some of the others. There has been some dissent in the past several years. This ties in with what Mr. Gabrielson told you in connection with the changed viewpoint of what constitutes national forest administration. In other words, while I have been in the Forest Service, I have noticed a slow but gradual change in that region, an area devoted exclusively to the production of trees, and since the laying down of this new principle, I know there has come a decided change in the whole program of wildlife.

(1) The wildlife of the national forests is a product of the land, along with the forage, timber and the other resources. Therefore, this is a resource publicly owned for hunting.

(2) The management of wildlife will be properly regulated for the occupancy of national forest lands and the orderly utilization of all natural resources. The resources rendering the highest form of public service will govern the decision as to what areas and how much should be devoted to wildlife management.

(3) The Forest Service will seek the advice of other scientific bureaus of the federal government and the states having to do with wildlife management. Those are the basic principles under which we are now operating.

I know when the Forest Service entered the field of conservation some years ago, we were the only agency having to do with grazing on wild lands. Today, in addition to our 46 state planning boards and some 350 county boards, there are 39 federal agencies which have to do with the administration of wildlife, 16 agencies deal with grazing, some 16 deal with administration of timber and 5 are conducting experiments and demonstrations in the administration of wildlife. I mention that to show the very great difficulty that the agencies face in working out these plans and the tremendous amount of study that must be made on the part of the various agencies. That is a pessimistic picture but while I have been traveling I have seen enough of cooperative examples to almost make an optimist out of me. We hear of this conflict but when we come out on the ground we find the state game warden, the president of the protective association, the representatives of the other groups and the Forest Service all on the ground working things out in an amiable solution. In California men are working with the U. S. Bureau of Fisheries, and the Forest Service is working out plans in fish management so I see I am an optimist and there are possibilities of this cooperation.

Yesterday some of the delegates in this room asked some very important questions: George Aiken from Oregon and Newell Cook from Utah raised the question as to just how we were going to settle this difficulty between sheep and cattle on one hand and wildlife on the other. Gentlemen, there is no other way that we can have game management unless the agencies sit down together and say we are going to have so many of each animal because we came up here and

we find 10,000 head of deer on an area of 50,000 acres that is occupied during the summer season by sheep, cattle and deer. This summer range's vegetation is all consumed by these three classes of animals in the summer and these deer move in October to occupy an area of land with no vegetation at all. We look into records and see that the supervisors have reduced the stock on that range 33 $\frac{1}{3}$ %. These are not the only problems that range managers have to work out. One other thought on this: I notice a trend on the part of this meeting to urge the greater delegation of authority by state legislatures to state game commissioners, and I make this comment—that if all states in the Union, especially those states in the west, where big game is found in competition with livestock, would get together with the other interested agencies and work out a range management plan, we would not have any of this conflict as to what we are going to do on the opening and closing of the season. No effort should be spared to attempt to get complete delegation of such authority. I would sum this up by saying: the Forest Service intends thoroughly to define the proper place of wildlife in the national forests. The Forest Service, in carrying out these basic principles, has established a new Division of Wild Life Management, taking that responsibility out of the old Division of Range Management, yet requiring the complete coordination of cooperation between the two because you know we can not separate big game and domestic stock management in the areas where we have established a new division; and a technical personnel will be developed and plans will be carried out just as rapidly as possible. We have our cooperative agreement with the Biological Survey and we work with them. The same holds true with the Bureau of Fisheries. We recognize both these bureaus as agencies for research.

So I say that in the carrying out of this program we urge your support and complete cooperation in working through and with the various states; and as for my own Division, we do not want to do one thing that will take away from the states any lawful powers which they now possess. Thank you, gentlemen.

FOREST SERVICE POLICY IN GAME MANAGEMENT

By H. L. SHANTS, Chief, Division of Wildlife Management,
U. S. Forest Service

Members of the Western Association of Game and Fish Commissioners, ladies and gentlemen: I am glad that Mr. Dutton had a chance to outline to you the new set-up in the national forests, the fact that we have divided the old Division of Range into two divisions. Mr. Dutton and I started the first of June to look over the western ranges and I feel in some way very fortunate in being able to be here with you; but rather unfortunate that I have to talk to this group so early on this inspection trip.

We have only covered four of the western states but we found very little conflict between our two divisions in that area. If we look at our

problem we must realize that land, "the foothold of all things," is basic to any state or national program.

In less than 200 years of settlement we have destroyed almost all of our eastern forests. Formerly unbroken and comprising more than a million square miles, less than one-fourth is now in merchantable timber, about one-half is farm land and one-fourth waste land.

Of the farm lands in the United States we have badly impaired 125 million acres, partially impaired 100 million acres and impoverished 34 million, a total of about 259 million acres partially or wholly destroyed or 13.6 per cent of the total area of the United States.

Even more astonishing is the degree to which the western range lands have been abused and neglected. These lands occupy about two-fifths of the total land area of the United States. About one-half the area of these range lands is in private ownership and about one-third in federal. According to the best estimates available these areas have been depleted to the point where it may be safely said that three-fourths of the total area is on the down grade.

Excessive or badly managed stocking is the outstanding cause of this condition and the present situation shows no immediate possibility of solution since the range lands now are stocked with about 17.3 million animal units when they are estimated to carry only 10.8 million animal units. Of the 728 million acres of western range lands, 523 million, or 72 per cent, are still subject to unrestricted grazing.

The unrestricted expansion of agriculture has encroached on the short grass and already about 25 million acres of this land which should never have been plowed has been abandoned and is the source of much of the dust which has blackened the skies of the Great Plains region during the past several years.

One-third of our land area, 589 million acres, is partly eroded and three-fifths of this area is adding silt to rivers and reservoirs.

Probably more than 50 years will be required to restore the damage resulting from 50 to 100 years of unrestricted use of the range lands.

The wildlife picture is even more discouraging. This is due largely to the destruction of the natural feeding and breeding grounds. Some of this change was inevitable, but it is a change nevertheless. The rich grasslands and swamps of the East and of the great prairie region have been drained and planted to produce agricultural crops. The great prairies and plains, the natural home throughout the world of great herds of herbivorous animals and their attendant predators have been turned to fields of corn and small grain. The valleys of the West, the winter home of great herds of game and the breeding ground of waterfowl, have been appropriated for domestic stock and drained or irrigated for the production of crops. The public domain has been eaten out by bands of sheep and cattle, and become less suitable for wildlife. Throughout, streams and lakes have been subjected to industrial use with little or no thought of the effect on the wild animals which occupy them, and even the great spawning waters which supply that magnificent "rearing pond," the ocean, have been damaged by man's careless use.

There seemed to be no way to stem this gradual destruction of the land and its resources until a program of conservation swept this country in the early part of this century. The national policy was

changed from that of giving away land to anyone for any purpose to a tendency to conserve areas for the use of all, to look to the best future use of land and to protect and perpetuate what nature has given us.

The national forests were established to conserve the resources of timber, grazing, wildlife and recreation, for protection of watersheds, stream flow, power, and to prevent soil erosion and floods, and a national park system was dedicated to recreation and the protection of scenic wonders for the benefit of all. This system of parks and forests is the envy of every nation in the world today, and should be the pride of every American citizen.

This conservation movement has now been extended and broadened. A national resources board, extending into state, county and city, is at work trying to plan for the future in terms of the present. Land can no longer be considered only from the point of view of immediate use. Permanent usefulness must not be impaired by present use. The day is past when man has the right with public approval to despoil for all time the earth on which future generations must live. To this end the lands and the resources administered by the state and the nation must be managed. The great erosion control program and the Wildlife Federation headed by Jay N. Darling, are expressions of the national interest in conservation and restoration.

The Forest Service is charged with managing over 200 million acres of land, or more than one acre in every ten in the United States. This is probably the greatest opportunity and the greatest challenge in land planning ever accorded any government agency or any other agency within the history of man. It demands the proper use of land measured in terms of its ability to produce for all time those things which lead to man's fullest expression. On the basis of a permanent policy we must raise this land to its highest social and economic use. Our program for the future must look to the land as the basis on which to build a home for man, surrounded by the bounties of plant and animal life.

Although it shows the least degradation and the greatest area of land which is improving, the Forest Service is determined to stem the downward trend and bring its acres back to normal production. To this end reduction in stocking with domestic animals has been undertaken where necessary, with the belief that soon we can return to a safe optimum far above the present potential production.

Basic principles to be observed in this program are to develop the present in accordance with the proper future protection of the various resources. First and foremost must be the protection of the watershed and the soil by maintaining a plant cover, by the employment of proper methods of lumbering, grazing of domestic and wild animals and the control of recreation practice; by the protection and development of soil, by stopping erosion loss, by spreading water, by equalizing stream flow and by preventing floods; by insuring the retention or reproduction of valuable species of trees for lumber and protection, shrubs for protection and browse, and ground cover for protection and for grazing animals; to consider insofar as possible and not impair the future usefulness of the land or other resources, the two great western industries, lumbering and grazing, upon which thousands of our people and hundreds of our communities depend for

a living; to manage our wildlife resources by providing protection and maintenance of the natural environment of cover and food so as to produce the greatest crop and thereby contribute to the aesthetic and recreational value of the forests, lakes and streams, and to insure the greatest maintained take of game and fish.

Recreation in its broadest sense includes not only the use and enjoyment of the forests by animals, campers, tourists and nature lovers, but also by hunters and fishermen. In the multiple use program we must determine the best present and future use of the land. We must not ignore either present demand or future good. Fortunately, in most cases the best present use is likewise the best future use.

Protection of watershed and soil must be insured, whatever the use, and there may be lands on which this consideration may exclude any other use. As a rule, however, timber production, grazing by domestic stock, wildlife and recreation will have to be considered and a balanced program worked out. The best use may not always be multiple use. Certain areas will produce timber and little else. Parts may be set aside for wildlife alone. Recreation may, in some cases, be the highest use.

Wildlife means all forms of life, and its development and maintenance rests on the physical base, the environment. For herbivorous animals, most of our big game, the plant cover is basic and should be so managed that it will produce the greatest amount of food for animal use year after year. This greatest production can only be maintained if the cropping by browsing and grazing is not in excess of the optimum amount. If overgrazed by 10 per cent too many animals for a single year, the forage is reduced rapidly and a return to balance may mean years of protection and a reduction in grazing animals to at least thirty per cent below the optimum. Permanent damage is often done. This is especially true of browse. The damage resulting from overstocking, which is rarely noticed until excessive, is a disproportionately forced reduction in animal units within a few years. Climatic conditions are a major consideration in this connection. A desert browse which has required 50 to 100 years to develop, when once eaten back will not return in one generation, and amounts for us to nearly a permanent destruction.

This is by all odds the most serious factor confronting our big game herds at the present time. Unfortunately the set-up of the national forests does not afford a balance of summer and winter range for migrating deer and elk. As a rule, in the south and more desert areas the summer range is restricted, but in most of the area the winter range is vital. Adjustments along this line are badly needed. Except in the luxuriant areas of chaparral or west coast thicket, the browse of the semi-desert type can be replaced only slowly and requires many years to overcome the effect of a single season of overstocking. A few years of heavy grazing removes entirely the browse on which animals must subsist during the winter. Often the permanent browse plants such as juniper, bitterbrush and deerbrush are trimmed to a deerline out of reach of all but the taller animals. Another line, a snowline, may cover up the lower plants. Cattle and sheep have often been removed from these lands and a rapidly increasing deer, elk or antelope herd will take up the slack in a year or two. Cattle

and sheep can easily be moved but deer will starve to death within a few miles of good browse, and every attempt to overcome the instinct of remaining on their own range has failed. Determining the danger line is not a matter of counting the animals. It is a matter of feed and can only be determined by one skilled in the study of the range, its browse plants, and their carrying capacity. Counting the number of deer may be necessary in determining a percentage reduction of the herd, but to rely only on the count or number of deer as a basis of determining whether or not there are more than can be fed is like determining your bank balance by counting the number of blank checks in your check book or by the number of bills you have coming due at the end of the month. In many cases we have done this very thing, have overdrawn our account, lost thousands of deer by starvation and left a country depleted for many years to come. Any rational program can not support this destruction of range and loss of deer. There must be a better way—one that will preserve the forage and yield a continuous crop of deer. We have been "killing the goose that laid the golden egg." Nature lovers and sportsmen want more deer but forget that food is necessary and is the limiting factor in forest and desert ranges. It is a renewable asset if not destroyed by over-use. In this case the deer are the "golden egg" which we all desire and the "goose" is the browse from which alone can come quantity and quality of deer.

To maintain the environment at peak production means understocking for protection. This results in maintaining the highest possible carrying capacity throughout the years, and the greatest potential production of game animals dependent on the plant food. The object of good management is to produce the best crop in quality and quantity through a long period of years. The quantity of game has received more consideration than the quality. But the latter is becoming equally important, in big game, fish and fur bearers. Even though we may be responsible for the program for only a year or two, we can not allow personal selfishness to impair the future of the resource.

The whole plan for managing our game animals is so inflexible that those who wish to carry out good practices are unable to do so. The game refuge, which is admirable in purpose, is often vicious in practice. This is especially true of large refuges. Based partly on the assumption that the deer will distribute themselves to adjacent areas, which has not proven to be the case if we exclude the annual migrations, they usually, if successful, result in concentrations which soon overbalance the food supply. Often established by legislative action, they can not be opened on a basis of biological necessity and must be terribly overgrazed before public opinion can be secured to enable legislatures to act on the matter. As a rule, we are about four or more years behind and the reduction comes by way of starvation and permanent damage to the browse. Conditions are much better where the game commissions have power to set up and open refuges on the recommendation of those who are making a constant study of the conditions of the vegetation base on which the deer must live. There is, as you know, a further complication where elk are allowed to become over-numerous. They remove much of the choice food of the deer by establishing a line at about 9 feet, far beyond the reach of

deer. This operates on both winter and summer range. Plants when once cleaned to the deer line at about 5 feet, or the elk line at 9 feet, do not, as a rule, put out any new growth below this line. They continue to grow above and produce seed but are otherwise valueless to deer and elk. Antelope also produce a browse line on overgrazed ranges.

An increased opportunity for wildlife does not mean overgrazing. Elk and deer are as destructive as cattle or sheep, and may increase as rapidly. Over-protection of elk, deer and antelope in most cases means first of all destruction of the food base and later the herd itself. It would be unthinkable to allow cattle and sheep to multiply on a given range without control by cropping. It is equally unthinkable with deer, antelope and elk. The management of game requires proper cropping by man or the removal of the excess by predators. The best means of securing the proper distribution of animals like deer and elk is by controlled removal from congested areas and protection in areas of sparse distribution.

We believe management can be secured in time by a cooperative program. This management will enable us to distribute our game over the whole area suited to its production, will allow us to work out hunting plans which will protect and maintain our resources in food at its highest productive capacity and avoid wholesale starvation, will enable us to avoid the development of undesirable sex ratios in the herds, and will, in short, give us legal authority to maintain practices which are sound biologically. The advantages of a cooperative program are chiefly that it strengthens the state departments and that it carries over to every part of the state and nation the good practices which otherwise might be limited only to one of these agencies.

The Forest Service asks your cooperation in conserving and improving the environment and asks the privilege of cooperation to this end with you in the management of game and fish. We come with no selfish aim other than conservation and protection of the forest resources with which we are charged by law and which we believe we have both the duty and the right to manage. Under the present practice the game, fish and fur bearers yield income to the state and very little or nothing to the national government. We can have no ulterior selfish interest in wishing to manage this resource in such a way as to yield to the people of the United States, through you, the greatest crop of fish, game and fur bearers.

Within the limits of our multiple use program we wish to produce the best possible home for big game, upland birds, fish, waterfowl, fur bearers and other wildlife. We wish to raise the best and largest crop for recreation purposes, hunting, fishing and trapping. We wish to cooperate in every way with state and other agencies to this end.

It is our wish to strengthen the state game departments and to see them freed from unnecessary legislative restriction in the interest of producing more fishing and hunting in the national forests by increased production, by better law enforcement, by lessening conflict of purposes, by education of the public to the importance of our wildlife resources and wildlife management and by favoring stronger state wildlife organizations; and to cooperate in every way not only with state and other wardens and commissions but with any other agency interested in developing the wildlife resources, in order to extend

these resources to the whole country. It is possible, with a closer cooperation between the state and the Forest Service to accomplish more than either agency could if it alone were in control.

There are no essential differences in the objects sought by the Forest Service and the state game departments if viewed from a distance and as a long time program. True, there are differences of opinion and these come mostly from those who stand close together. At a distance they are lost in the general picture. Usually the most violent differences come from those who want the same result but approach it from different backgrounds and want to accomplish it by different methods.

The agencies interested in wildlife do not see eye to eye. There are sects with different beliefs. Some hunters want more animals whether there is feed or not and regardless of what happens to the environment. They count the deer but never look for deer food or vegetation. The nature lover may take a similar stand and want no deer killed no matter how short of feed they may be. He may ask that they be fed as domestic stock without consideration that this not only domesticates the herd and subjects it to possible disease, but that it merely carries over more deer to further overstocked range.

What would you do with the man who shoots everything he sees, with the man who shoots nothing and wants nature to take its course, with the man who would preserve all of the ruminants and preserve all predators, with the man who would kill all the predators, with the man who would rather feed 52,000 deer a year to a thousand mountain lions than permit the hunters to take them, with the man who wants wolves protected, with the man who would throw all the sheep and cattle off the national forests, with the man who would not license any boy or girl under 21 years of age to hunt or fish, and with the man who would surround the national parks with a 50-mile strip of breeding ground and another 50-mile strip where animals could roam at will but could not breed?

There are many of these differences of opinion, none of which are of major importance, and all of which would be somewhat satisfied by a properly managed program of wildlife protection and propagation.

Our job is too big, too important to the present and the future to be disturbed or deflected by extreme measures or by the opinions of small minorities. To the state game conservation departments we extend our cooperation in managing the forest environment through game management so as to bring to them the best possible crop of game and fish. You are handicapped and hindered in some cases just as we are by laws and legislation which must be carried out. Ultimately we hope these may be changed to increase the efficiency in carrying out the responsibility placed upon both of us in our respective positions. We hope that in all cases we can aid you in a planned program and that you will give us the chance to cooperate. Our purpose is:

To raise the forests to their highest potential production capacity.

To balance the needs of a multiple use program.

To consider the social as well as the economic.

To cooperate with state agencies to accomplish these ends and in this way strengthen the wildlife program beyond the forest boundary.

To bring every possible agency to aid the program.

To broaden our program to increase the protection of species which are in danger of extermination.

To encourage citizen organizations by a program of education to join in an attempt to attain for the future the security of a well managed present.

The watersheds and soils must be protected. To this end we must not permit bad practices in recreation, grazing or wildlife management. We are charged by law with the responsibility of protecting and developing the national forests. To this end we can not allow destruction of the browse or grass cover by overstocking of domestic or game animals. To allow great herds to starve for lack of browse is to repeat the errors of the cattleman and the sheepman. They have paid the price of a lack of a planned program. We do not want to see the wildlife program hampered by a repetition or a continuation of this haphazard practice. There are many unknown facts important to a well managed program but to await the slow process of research before we attempt to apply what we now know would be fatal. We must use the facts and experiences we have at hand and change our policies as fast as necessary in the light of additional research.

Where laws permit you can help us in making necessary reductions or give additional protection and where they do not permit you to do so we should work together to secure a change. Federal lands must be protected from wasteful and destructive practices but the Forest Service never desires to act alone or independently if it is possible by cooperation with you to avoid such action.

Discussion

LEWIS: I think that is one of the most complete papers that has been read with reference to the game situation in our eleven western states. I have known Dr. Shants for a long time in Tucson and we hated to lose him; and the State Game Department of Arizona regretted it more than any other group in the State but we hope to see you around occasionally.

If there is anyone here who would like to discuss what we have just heard or ask any questions, I am sure he would be glad to attempt to reply to any questions that might be asked him.

MOFFITT: I would like to ask the policy as regards wilderness areas. We have that condition in this State.

SHANTS: I would like to have Mr. Dutton answer that.

DUTTON: The Forest Service has full authority on the ground, and without taking it up with the Secretary of Agriculture, to completely exclude domesticated stock from any area whenever necessary; and if at any time persons interfere or threaten to interfere, we can exclude stock on the ground.

BARKER: Any further discussion on this question? If not, I believe that we are now about ready to hear the reports of the different committees that have reported.

COMMITTEE REPORTS

Finance Committee

KENNETH F. MACDONALD, Chairman-----Montana
 GEORGE K. AIKEN-----Oregon
 A. J. MARTIN-----Wyoming

Resolution Committee

NEWELL B. COOK, Chairman-----Utah
 AMOS ECKERT-----Idaho
 HERBERT C. DAVIS-----California
 S. L. LEWIS-----Arizona
 GLENN DAVIS-----Washington

Resolved, That it is our belief that the highest benefits for wildlife and wildlife resources can be achieved through a consolidation of the principal federal agencies now engaged in administering wildlife on all of the public lands of the nation including Indian reservations. To this end it is our belief that such action should be taken by Congress or departmental heads to bring about the above and that in such consolidation, no laws should be enacted which will limit or restrict the lawful powers of the state.

Resolved, That this Association is in sympathy with the movement to create a general Wildlife Federation and will, within the states constituting the Association, lend its support to the federating of the various groups interested in wildlife—its restoration and perpetuation.

Resolved, That this Association recommend to the United States Senate Committee on Conservation of Wildlife Resources and the similar committee in the House of Representatives that they investigate the possibility and desirability of a federal aid program for wildlife restoration throughout the nation, state by state, similar in plan to that which is practiced by the federal government through its Public Roads Bureau in the building of the national highway system, with the thought in mind of restoring the habitat for game on all public lands, both state and federal.

Resolved, That the Western Association favor 60-day open season on waterfowl, shooting days not more than three days per week, two of which must be consecutive.

Resolved, That this Association reiterate its stand taken at Santa Fe in 1935, relative to the Taylor Grazing Act.

WHEREAS, The Indian Irrigation Service has, during the past 15 years, developed a very satisfactory irrigation system which has made possible profitable utilization of farm lands upon Indian reservations; and

WHEREAS, Through the development of this system has resulted the loss of great numbers of game fish which would otherwise be available to the Indian; and

WHEREAS, In many cases development of the irrigation system has benefited the Indians to but a small extent due to the control of irrigable lands having passed from the Indians to the Whites, but has taken from the Indians the very resources intended in treaties that should be reserved to them, that of the game fish; therefore be it

Resolved, That the Western Association of Game and Fish Commissioners at the 16th annual meeting in San Francisco, July 22d and 23d, 1936, go on record as favoring a program which would require all irrigation ditches under the administration of the Indian Irrigation Service be properly screened to preserve loss of game and food fish in order that the recreational and economic resources shall be properly protected.

WHEREAS, Each state fish and game commission in the western states in addition to the federal Bureau of Fisheries each year spends many thousand dollars upon propagation and distribution of game fish; and

WHEREAS, Many of the potential game fish waters are to be found in the upper reaches of streams, the water of which is ultimately used for irrigation purposes by the U. S. Bureau of Reclamation; and

WHEREAS, The fish and game commissions are without means to assume the responsibility for screening diversion ditches and are endeavoring to have the responsibility for screening diversion ditches assumed by the individual water user which is an impossibility under the present lack of this responsibility by governmental bureaus administering reclamation and irrigation projects; therefore be it

Resolved, That, at the 16th annual meeting of the Western Association of Game and Fish Commissioners at San Francisco, California, July 22d and 23d, 1936, this Association go on record as being opposed to further delay by the Reclamation Service in correcting this condition and every effort be made to the end that all diversion ditches under jurisdiction of the U. S. Bureau of Reclamation be properly screened to prevent loss of fish life.

WHEREAS, Since this Association assembled, the newspapers have carried stories intimating irregularities in the expense account of Mr. Herbert C. Davis, Executive Officer of the California Fish and Game Commission; therefore be it

Resolved, That this Association express its appreciation for the splendid service rendered by him and its confidence in his honesty and integrity, and that we unanimously express our wholehearted confidence in his honesty and integrity and believe that an investigation will conclusively establish his innocence of the charges that have been made against him.

Resolved, That this Association express its appreciation to the State of California and the following individuals and organizations for their part in this most successful convention: the California Fish and Game Commission and their employees; Mayor of San Francisco; Management of the Alexander Hamilton Hotel; San Francisco Con-

vention Bureau; Organized Sportsmen of California; the California Academy of Sciences; the press of San Francisco and Oakland and those who have taken part on this program.

WHEREAS, During his incumbency as president of this Association for two terms, the western states have faced many of the most crucial problems affecting the wildlife, progress toward solution of which is the result of his able leadership, broad, sympathetic interest and executive ability, we do hereby extend to Elliott S. Barker this expression of our appreciation of his work as an officer and a man.

CALIFORNIA FISH AND GAME

A publication devoted to the conservation of wild life and published quarterly by the California Division of Fish and Game.

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VOLUME 23

JANUARY, 1937

No. 1

The State of California feels definitely privileged to have been the host to the Western Association of State Game and Fish Commissioners on July 22 and 23, 1936, when they convened at San Francisco, California, for their 16th annual convention.

The entire proceedings were so methodically handled, so business-like in every respect and produced such splendid papers by competent authorities on fish and game matters it was felt that the proceedings and opinions of leaders in conservation from other states and from the federal government would be of value and benefit to the people of the State of California.

We are therefore printing the transactions as an issue of CALIFORNIA FISH AND GAME in order that the record may be preserved and made available to the people of this State.—*Herbert C. Davis.*

REPORTS

STATEMENT OF REVENUE

For the Period July 1, 1936, to September 30, 1936, of the Eighty-eighth Fiscal Year

REVENUE FOR FISH AND GAME PRESERVATION FUND

Current year—

License sales:

Angling licenses, 1936	\$112,582 00
Commercial hunting club licenses, 1936-1937	75 00
Commercial hunting club operators licenses, 1936-1937	10 00
Deer tags, 1936	27,685 00
Fish breeders' licenses, 1936	20 00
Fishing party vessel permit, 1936	49 00
Fish packers and wholesaleshellfish dealers licenses, 1936 and 1937	705 00
Game breeders' licenses, 1936	80 00
Hunting licenses, 1935-1936	19,851 00
Hunting licenses, 1936-1937	72,907 00
Market fishermen's licenses, 1936-1937	30,640 00
Trapping licenses, 1936-1937	64 00
Total license sales	\$264,668 00

Other income:

Court fines	\$19,139 96
Fish packers' tax	32,700 23
Fish tag sales	616 04
Game tag sales	56 25
Interest on bank balances	1,464 98
Kelp tax	33 45
Lease of kelp beds	283 60
Publication sales	66 85
Salmon tax (Chap. 1015-35)	4,928 18
Miscellaneous sales	1,301 58
Total other income	60,591 12
Grand total	\$325,259 12

STATEMENT OF EXPENDITURES

For the Period July 1, 1936, to September 30, 1936, of the Eighty-eighth Fiscal Year

Function	Salaries and wages	Materials and supplies	Service and expense	Property and equipment	Total
Operating expenditures eighty-eighth fiscal year					
Administration:					
Executive.....	\$1,249 98				\$1,249 98
General office.....	1,380 00	\$296 86	\$122 09		1,798 95
Printing, general.....		146 92			146 92
Automobiles.....		34 14	16 51		50 65
Traveling.....			677 46		677 46
Postage.....			1,229 71		1,229 71
Telephone and telegraph.....			369 74		369 74
Freight, cartage and express.....			193 75		193 75
Rent.....			2,004 34		2,004 34
Accident and death claims.....			895 33		895 33
Departmental Administration pro rata.....	2,500 00				2,500 00
Librarian.....	450 00	6 39	19 00	\$22 85	498 24
Legal.....			22 50		22 50
Sales tax on sales, deducted from total.....			-1 17		-1 17
Total Administration.....	\$5,579 98	\$484 31	\$5,549 26	\$22 85	\$11,636 40
Patrol and Law Enforcement:					
Chief and assistants.....	\$3,555 00				\$3,555 00
General office.....	1,365 00	\$15 58		\$4 04	1,384 62
Automobiles.....		4,402 00	\$2,129 21	5,950 28	12,481 49
Traveling.....			11,868 38		11,868 38
Postage.....			183 86		183 86
Telephone and telegraph.....			349 00		349 00
Rent.....			201 48		201 48
Captains and wardens.....	51,575 03	97 13	157 26		51,829 42
Launches.....	2,200 20	2,241 15	1,813 64	138 41	6,393 40
Temporary help.....	350 81				350 81
Assistant fish and game wardens, seasonal.....	3,102 30				3,102 30
Total Patrol and Law Enforcement.....	\$62,148 34	\$6,755 86	\$16,702 83	\$6,092 73	\$91,699 76
Commercial Fisheries:					
Chief and assistant.....	\$2,610 00				\$2,610 00
General office.....	2,346 77	\$23 97	\$3 50	\$119 13	2,493 37
Automobiles.....		34 69	57 01	623 15	714 85
Travel.....			1,568 60		1,568 60
Telephone and telegraph.....			234 27		234 27
Freight, cartage and express.....			18 39		18 39
Rent.....			44 36		44 36
Heat, light, water and power.....			67 41		67 41
Research (oyster).....	570 00	7 52			577 52
Laboratory.....	6,972 42	332 28	124 84	374 86	7,804 40
Cooperative research.....			250 00		250 00
Statistics.....		64 28	519 00		583 28
Temporary help.....	300 00				300 00
Terminal Island grounds.....	150 00				150 00
Fish cannery auditing.....			530 00		530 00
Total Commercial Fisheries.....	\$12,949 19	\$462 74	\$3,417 38	\$1,117 14	\$17,946 45
Fish Conservation:					
Chief and assistants.....	\$1,815 00				\$1,815 00
General office.....	1,320 00	\$1 73	\$2 15		1,323 88
Automobiles.....		2,456 86	661 62	\$6 56	3,125 04
Traveling.....			3,043 30		3,043 30
Postage.....			39 19		39 19
Telephone and telegraph.....			241 38		241 38
Freight, cartage and express.....			25 60		25 60
Rent.....			149 00		149 00
Heat, light, water and power.....			314 29		314 29
Fish planting.....		502 02	743 00	14 30	1,259 32
Hatcheries.....	27,300 00	11,268 43	211 20	312 57	39,092 20
Fish cars.....	450 00		722 73		1,172 73
Cooperative research.....	780 00	47 43	8 18	11 33	846 94
Statistical.....	216 78	77	243 70		461 25
Temporary help.....	224 51				224 51
Special field.....	3,390 00	2 57			3,392 57
Fish rescue.....	480 00		25 50		505 50
Assistant fish and game wardens, seasonal.....	10,365 61				10,365 61
Total Fish Conservation.....	\$46,341 90	\$14,279 81	\$6,430 84	\$344 76	\$67,397 31

STATEMENT OF EXPENDITURES

For the Period July 1, 1936, to September 30, 1936, of the Eighty-eighth Fiscal Year—Continued

Function	Salaries and wages	Materials and supplies	Service and expense	Property and equipment	Total
Hydraulics:					
Chief and assistants	\$1,816 30				\$1,816 30
General office	480 00	\$10 63	\$2 88		493 51
Automobiles		60 82	16 17	\$10 97	87 96
Traveling			620 87		620 87
Total Hydraulics	\$2,296 30	\$71 45	\$639 92	\$10 97	\$3,018 64
Game Conservation:					
Chief and assistants	\$3,264 99				\$3,264 99
General office	1,170 00	\$2 88	\$1 50		1,174 38
Automobiles		579 02	123 41	\$437 65	1,140 08
Traveling			919 91		919 91
Telephone and telegraph			68 05		68 05
Freight, cartage and express			31 29		31 29
Heat, light, water and power			1,209 87		1,209 87
Maintenance of game farms	2,946 97	4,259 01	88 36	496 90	7,791 24
Predatory animal control (to be corrected)	370 00				370 00
Statistics		1 22	247 77		248 99
Temporary help	1,797 63				1,797 63
Maintenance of game refuges	1,808 00	71 33	29 27		1,908 60
Total Game Conservation	\$11,357 59	\$4,913 46	\$2,719 43	\$934 55	\$19,925 03
Licenses:					
General office	\$3,465 00	\$3 61	\$78 76	\$2 16	\$3,549 53
Printing licenses and applications		302 85	152 05		454 90
Postage			398 10		398 10
Freight, cartage and express			4 86		4 86
Premiums on bonds			861 65		861 65
Identification license buttons		1,954 53	14,885 45		16,839 98
Total Licenses	\$3,465 00	\$2,260 99	\$16,380 87	\$2 16	\$22,109 02
Special item:					
State fair and other exhibits (payable from Support, Chapter 341-35, or E. O. for Support)	\$40 00		\$1,200 00		\$1,240 00
Totalspecial item	\$40 00		\$1,200 00		\$1,240 00
Total 88th fiscal year, expense paid from support appropriations	\$144,178 30	\$29,228 62	\$53,040 53	\$8,525 16	\$234,972 61
Prior year, 87th fiscal yearsupport					11,497 98
Total 87th and 88th fiscal year for Support					\$246,470 59
Special items:					
Predatory Animal Control:					
88th fiscal year:					
Chief and assistants	\$975 00				\$975 00
General office	240 00			\$25 00	265 00
Automobiles		\$297 04	\$77 54		374 58
Traveling			526 20		526 20
Predatory animal control	3,654 67		1,155 59		4,810 26
Predatory animal hunters and trappers, seasonal	1,500 00				1,500 00
Total 88th fiscal year	\$6,369 67	\$297 04	\$1,759 33	\$25 00	\$8,451 04
87th fiscal year					38 25
Total Predatory Animal Control, 87th and 88th fiscal years					\$8,489 29
Total operating expenditures, 87th and 88th fiscal years					\$254,959 88
Expenditures for additions and betterments:					
Permanent improvements:					
Purchase of game refuges and public shooting grounds and construction, improvements and equipment (Chapter 341-35)	\$6,771 73	\$6,161 78	\$3,587 41	\$491 89	\$17,012 81
Prior year: 87th fiscal year construction, improvements and equipment and purchase of game refuges and public shooting grounds (Chapter 341-35, all objects)					\$1,887 00
Total permanent improvements, 87th and 88th fiscal years					\$18,899 81
Grand total					\$273,859 69

SEIZURES OF FISH AND GAME

July, August, September, 1936

Game:		
Bear.....	1	
Deer.....	31	
Deer head.....	2	
Deer hide.....	1	
Deer meat, pounds.....	525	
Doves.....	607	
Duck.....	7	
Meadowlark.....	2	
Pheasants.....	30	
Quail.....	57	
Rabbits.....	60	
Woodpecker.....	3	
Fish:		
Abalone.....	68	
Barraeuda.....	125	
Barracuda, pounds.....	200	
Bass.....		
Black.....	54	
Rock.....	4	
Sea, pounds.....	39	
Striped.....	172	
Catfish, pounds.....	70	
Clams.....	1,519	
Crab.....	136	
Crappie.....	11	
Croaker.....	1	
Lobsters.....	78	
Lobsters, pounds.....	55	
Perch.....	31	
Salmon.....	14	
Sunfish.....	42	
Traps.....	10	
Trout.....	673	
Tuna, pounds.....	6,421	
Yellowtail.....	1	

GAME CASES

July, August, September, 1936

Offense	Number arrests	Fines imposed	Jail sentences (days)
Deer; closed season; kill and possess spotted fawn, spike buck, doe; fail to tag deer; transferring tags.....	146	\$4,467 50	422½
Dove; closed season; overlimit.....	47	1,680 00	
Ducks; closed season.....	6	350 00	
Firearms in refuge.....	22	415 00	52
Game birds; closed season.....	6	85 00	
Hunting; no license; in refuge; closed area.....	82	1,370 00	47½
Illegal shooting.....	21	315 00	1
License; using another's; false statement.....	7	75 00	
Night hunting.....	5	50 00	
Non-game birds in possession.....	6	110 00	
Pheasant; closed season.....	20	850 00	
Quail; closed season; overlimit.....	17	710 00	45
Rabbits; closed season.....	23	400 00	
Sierra hare in possession.....	1	50 00	
Spotlighting.....	19	1,000 00	
Trapping; no license.....	1		
Totals.....	429	\$11,927 50	568

FISH CASES

July, August, September, 1936

Offense	Number arrests	Fines imposed	Jail sentences (days)
Abalone; overlimit; undersize.....	17	\$280 00	25
Angling; no license.....	93	659 00	-----
Barracuda; overlimit; possession and sale of undersize.....	3	115 00	-----
Bass, black; overlimit; undersize.....	11	153 00	22
Bass, sea; overlimit; undersize.....	4	370 00	-----
Bass, striped; overlimit; undersize.....	26	605 00	55
Clams; closed season; overlimit; undersize; instrument in preserve.....	54	785 00	210
Commercial fishing; no license.....	77	445 00	5
Crabs; possession female; undersize; closed season.....	22	390 00	5
Fishing; closed district; closed season; from fishway; too near dam; using prohibited gear.....	59	2,310 00	15
Fishing boat not registered.....	1	25 00	-----
Fish wastage.....	3	100 00	-----
License; using another's; making false statement.....	12	130 00	35
Lobsters; closed season.....	7	60 00	-----
Net; illegal.....	25	995 00	-----
Night fishing.....	15	160 00	-----
Perch; selling closed season.....	3	75 00	-----
Pollution.....	8	415 00	-----
Salmon; overlimit; undersize.....	7	150 00	-----
Sardines; exceeding sardine permit tonnage allotment.....	4	1,500 00	-----
Sunfish; closed season.....	2	15 00	-----
Trout; overlimit.....	14	383 00	-----
Totals.....	467	\$10,120 00	372

Tuna, Albacore.....			19,505	1,592	1,116,977	2,336	1,140,410
Tuna, Bluefin.....			22	3,842	7,435,790	980,460	8,399,914
Tuna, Bonito.....			17		3,704,560	864,978	4,569,555
Tuna, Oriental.....					595,074		595,074
Tuna, Skipjack.....					5,050,189	8,215,724	13,265,913
Tuna, Yellowfin.....				35	5,133,576	15,281,591	20,415,202
Turbot.....			100		30		32,249
Whitebait.....			87				28,012
Whitefish.....				46	262	1,902	2,164
Yellowtail.....				1,716	1,463,328	3,674,931	5,138,305
Miscellaneous Fish.....			34		588	365	43,333
Crustacean:							
Crab.....			18				214,512
Crab, Rock.....					2,414		2,414
Prawn.....			301				301
Shrimp.....							1,325,318
Mollusk:							
Abalone.....							1,228,165
Clam, Cockle.....			604,675	620,740	150		5,830
Clam, Gaper.....					5,535		1,130
Clam, Pismo.....			2,551	66,765			69,316
Clam, Soft-shell.....							19,209
Clam, Washington.....							6,077
Octopus.....			14,337		34	19	15,483
Oyster, Eastern.....							55,356
Oyster, Japanese.....			1,975				96,671
Oyster, Native.....							3,430
Squid.....			49,655		26		50,756
Reptile:							
Turtle.....					475	1,617	2,092
Total pounds.....	128,145	3,049,323	120,311,954	1,058,024	68,305,333	33,487,075	287,193,601

* Importations of fresh fish from foreign countries included. See foreign importation tables.

FRESH FISH IMPORTATIONS* FROM FOREIGN COUNTRIES FOR JULY, AUGUST AND SEPTEMBER, 1936

Compiled by the Division of Fish and Game, Bureau of Commercial Fisheries

Species	Landed in Region 70, Los Angeles	Landed in Region 80, San Diego	Total pounds
Barracuda	7,756	193,147	200,903
Cabrilla	2,125	5,566	7,691
Grouper	990		990
Halibut, California		299,926	299,926
Kingfish		166	166
Mackerel, Horse		1,200	1,200
Mackerel, Pacific		1,601,605	1,601,605
Pompano, California		402	402
Rock Bass	435	26,482	26,917
Rockfish		20,381	20,381
Sardine		482	482
Sea-bass, Black	77,170	12,103	89,273
Sea-bass, White	788	169,218	170,006
Shark		1,245	1,245
Sheepshead		1,038	1,038
Skate		555	555
Smelt		424	424
Swordfish, Broadbill	1,518	20,958	22,476
Swordfish, Marlin		292	292
Tuna, Albacore	358,784		358,784
Tuna, Bluefin	454,676	864,174	1,318,850
Tuna, Bonito	3,524,372	672,683	4,197,055
Tuna, Oriental	595,074		595,074
Tuna, Skipjack	1,256,318	5,080,342	6,336,660
Tuna, Yellowfin	4,552,326	15,182,628	19,734,954
Whitefish		1,452	1,452
Yellowtail	1,442,533	3,638,617	5,081,150
Miscellaneous Fish		365	365
Reptile:			
Turtle		1,617	1,617
Total pounds	12,274,865	27,797,068	40,071,933

* These importations are included in tables of landings. They include fish caught by California boats in foreign waters as well as frozen fish imported for canning in California plants.

FRESH FISH IMPORTATIONS BY POINT OF ORIGIN* FOR JULY, AUGUST AND SEPTEMBER, 1936

Compiled by the Division of Fish and Game, Bureau of Commercial Fisheries

Species	Gulf of California	West Coast Lower California	International waters south U. S. bound- ary (definite origin unknown)	Mexican mainland, Central and South America	Japan	Total pounds
Barracuda		198,714	2,189			200,903
Cabrilla		2,125	5,566			7,691
Grouper		990				990
Halibut, California		299,926				299,926
Kingfish		166				166
Mackerel, Horse		1,200				1,200
Mackerel, Pacific		1,601,605				1,601,605
Pompano, California		402				402
Rock Bass		26,917				26,917
Rockfish		20,381				20,381
Sardine		482				482
Sea-bass, Black		88,263	1,010			89,273
Sea-bass, White		170,006				170,006
Shark		1,245				1,245
Sheepshead		1,038				1,038
Skate		555				555
Smelt		424				424
Swordfish, Broadbill		22,476				22,476
Swordfish, Marlin		292				292
Tuna, Albacore					358,784	358,784
Tuna, Bluefin		1,257,602	61,248			1,318,850
Tuna, Bonito		3,581,254	615,801			4,197,055
Tuna, Oriental					595,074	595,074
Tuna, Skipjack	37,663	2,147,252	3,605,837	8,895	537,013	6,336,660
Tuna, Yellowfin	576,859	2,209,314	15,357,007	1,583,146	8,628	19,734,954
Whitefish		1,452				1,452
Yellowtail		4,956,361	124,789			5,081,150
Miscellaneous Fish		365				365
Reptile:						
Turtle		1,617				1,617
Total pounds	614,522	16,592,424	19,773,447	1,592,041	1,499,499	40,071,933

* These importations are included in tables of landings. They include fish caught by California boats in foreign waters as well as frozen fish imported for canning in California plants.